

# **ANIMAL KEEPERS' FORUM**



**AUGUST 2010**

**The Journal of the American Association of Zoo Keepers, Inc.**

**ANIMAL KEEPERS' FORUM**, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054

Phone: (785) 273-9149 FAX (785) 273-1980

**August 2010**  
**Vol. 37, No. 8**

**AKF Managing Editor:** Susan D. Chan • **Associate Editors:** Becky Richendollar, North Carolina Zoo • Mark de Denus, Winnipeg, MB • **Enrichment Options Column Coordinator:** Julie Hartell-DeNardo, Oakland Zoo and Ric Kotarsky, Tulsa Zoo & Living Museum • **Legislative/Conservation Outlook Column Co-Coordinators:** Becky Richendollar, North Carolina Zoo and Greg McKinney, Philadelphia, PA • **Reactions Column Coordinator:** William K. Baker, Jr., Rockwall, TX • **ATC Column Co-Cordinators:** Angela Binney, Disney's Animal Kingdom; Kim Kezer, Zoo New England; Jay Pratte, Omaha's Henry Doorly Zoo • **Conservation Station Coordinator:** Amanda Kamradt, New England AAZK Chapter • **Proofreader:** Barbara Manspeaker, AAZK Administrative Office.

Animal Keepers' Forum is published monthly by the American Association of Zoo Keepers, Inc., 3601 S.W. 29th Street, Suite 133, Topeka, KS 66614-2054. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Postage paid at Topeka, KS.

**AAZK Executive Director:** Ed Hansen, AAZK, Inc., Topeka KS

also serves as **AAZK Liaison to the American Zoo & Aquarium Association (AZA)**

**AAZK Administrative Secretary:** Barbara Manspeaker, AAZK, Inc., Topeka, KS

#### **BOARD OF DIRECTORS**

Shane Good, Cleveland Metroparks Zoo, Cleveland, OH 44109

*President*

Bob Cisneros, San Diego Zoo, San Diego, CA 92112-0551

*Vice President*

Tammy Root, Indianapolis Zoo, Indianapolis, IN 46222

Gisela Wiggins, North Carolina Zoo, Asheboro, NC 27205-1425

Penny Jolly, Disney's Animal Kingdom, Lake Buena Vista, FL 32830-1000

#### **COMMITTEES/COORDINATORS/PROJECT MANAGERS**

##### **By-laws**

Chair - Gisela A. Wiggins, North Carolina Zoo

##### **Ethics**

Chair - Bob Cisneros, San Diego Zoo

##### **Grants Committee**

##### **Awards**

Chair - Shelly Roach, Columbus Zoo

Chair - Janet McCoy, The Oregon Zoo

##### **Behavioral Husbandry Committee**

##### **Professional Development**

Chair - Deana Walz, The Living Planet Aquarium

Melaina Wallace, Disney's Animal Kingdom

##### **Conservation Committee Chair**

##### **ICZ Coordinators**

Amanda Kamradt, New England AAZK Chapter

Shane Good, Cleveland Metroparks Zoo

Bowling for Rhinos - Coordinator - Patty Pearthree, Cary, NC

and Norah Farnham, Woodland Park Zoo

##### **Media/Website**

##### **Products and Membership**

Denise Wagner, The Phoenix Zoo, Project Manager

Jacque Blessington, K.C. Zoo, Project Manager

##### **Conferences**

Pat Owen, Woodland Park Zoo, Project Manager

#### **MEMBERSHIP SERVICES**

##### **Data Transfer Forms**

Available for download at [www.aazk.org](http://www.aazk.org)

#### **AAZK Publications/Logo Products**

AAZK Administrative Office/Topeka

or at [www.aazk.org](http://www.aazk.org)



*printed on Recycled Paper*

# *Table of Contents*

About the Cover/Information for Contributors.....	334
From the President.....	335
Pt. Defiance AAZK Chapter Underwrites <i>AKF</i> Production.....	336
AAZK Announces New Members.....	337
Coming Events.....	338
Enrichment Options ( <i>North American River Otters</i> ).....	340 - 344
People Skills for Animal People: Resolving Work-Related Conflicts.....	346 - 348
Special Discount Prices on AAZK Merchandise at Philly Conference.....	349
Reactions Column ( <i>Renovating Cat Exhibits</i> ).....	350 - 352
Horticulture Group (AZH) Offers Browse/Toxic Plant Seminar.....	352
Training Tales ( <i>Tinamou Training 101</i> ).....	353 - 356
Nominations for 2012 Indianapolis Conservation Prize Now Open.....	357
Training North American Black Bears for Blood Draws.....	358 - 359
International Animal Shipping: One of the Most Daunting Zoo Experiences There Is.....	360 - 367
Conservation/Legislative Update.....	368 - 372



*36th Anniversary - 1974 - 2010*

## *MISSION STATEMENT*

*(Revised April 2009)*

American Association of Zoo Keepers, Inc.

*The mission of the American Association of Zoo Keepers, Inc. is to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.*

This month's cover features the unique artwork of Camille Dorian, a caretaker at Monkey Matters in San Diego, CA. This cover was produced from one of her photographs that was taken into a graphics program on her computer where she generated the artwork. Featured is a Bornean Orangutan (*Pongo pygmaeus*) that resides at the San Diego Zoo. Orangutans are the largest arboreal mammals found on earth today. They are semi-solitary animals, but complex social networks of loose relationships are maintained between members of a community. Males tend to disperse further than females at maturity. More than 500 plant species have been recorded in their diet. Fruits make up more than 60% of their average total intake but their diet also includes leaves, barks, flowers and insects. Orangutans are best described as "gardeners" of the forest as they play a vital role in seed dispersal, especially for large seeds that are not dispersed by smaller animals. Fruit availability in the Bornean forest directly impacts all aspects of their life: ranging patterns, seasonal movements, health, social and reproductive behavior. The orangutan is the only primate species with two different forms of mature males (bimaturism). Flanged males are twice the size of the female; they possess a long coat of dark hair on the back, a facial disk, flanges and a throat sac used for "long calls". These males are rather intolerant and aggressive towards other adult males. Unflanged males do not possess these secondary sexual characteristics; they are the size of an adult female, they do not emit long calls nor do they show mutual intolerance. These two types of male both sire offspring and contribute to the reproduction of a given population. The transition from the unflanged to the flanged form can happen anytime; this depends mostly on complex social cues that are not yet fully understood. Females generally give birth to a single infant after a gestation period of approximately 245 days. Female Bornean orangutans reach maturity between 10 and 15 years old and reproduce every six to eight years on average. There has been an estimated decline of orangutan well over 50% during the last 60 years. The decline of the species is predicted to continue at this rate, primarily because of forest loss due to conversion of forest to agriculture and fires. The majority of remnant wild populations are located outside of protected areas, in forests that are exploited for timber production or in the process of being converted to agriculture. Last but not least, poaching and the pet-trade remain major threats to orangutans across most of Borneo. The Bornean orangutan is a fully protected species in both Malaysia and Indonesia legislation. This species is listed on Appendix I of CITES and also listed as Endangered on the IUCN Red List. Thanks, Camille!

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com<. If you have questions about submission guidelines, please contact the Editor.

**Deadline for each regular issue is the 10th of the preceding month.  
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. If an article is shown to be separately copyrighted by the author(s), then permission must be sought from the author(s). Reprints of material appearing in this journal may be ordered from the editor. Regular back issues are available for \$4.00 each. Special issues may cost more.

**E-Mail Addresses:**

You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com<  
You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxmail.com<

**Mailing Address:**

AAZK, Inc.,  
3601 SW 29th St., Suite 133  
Topeka, KS 66614-2054

**AAZK website Address: [www.aazk.org](http://www.aazk.org)**  
**BFR Website: <http://aazkbfr.org>**

# From the President . . .

## *Your Passport to Success*

I recently read an article by the Cleveland Plain Dealer's Connie Schultz describing a new initiative by the Ohio State University. Their program, called "Gateway to the World", encourages every incoming freshman this fall, almost 7,000 students, to get a U.S. passport. The idea is to get these new college students to realize that their community is a global one. As the author explains, once a student broadens the way they perceive themselves and their role in the world, "Barriers crumble, boundaries evaporate, and that's what happens when we open our minds".

Of course, this had me thinking about zoo keepers. I've heard far too many colleagues say "I'm just a zoo keeper" when describing themselves. Many of you in top-down management-style organizations feel like your opinions do not count, that you are not part of the team. Large-scale environmental problems like the Gulf oil spill, extinction of species, and climate change have many of us feeling helpless. But as I write this letter, on the eve of National Zoo Keeper Week, I think it is important to focus on those among us who have transcended the barriers and boundaries and let you know that you can do it too.

As you read in the July issue of AKF, the International Congress of Zookeepers (ICZ), which includes AAZK, continues to grow and evolve. Eighteen Steering Committee members, who happen to be zoo keepers just like most of you, are working hard to develop the 6000-member organization's strategy on professional animal care and conservation. The efforts of the ICZ were recently recognized when the World Association of Zoos and Aquariums (WAZA) invited the ICZ to participate and present at WAZA's Board of Directors meeting and national conference.

Farther north, the Polar Bear Sustainability Alliance, the world's best bet to save polar bear populations in a rapidly melting Arctic, just happens to be co-chaired by a zoo keeper. Keepers are heavily represented on the Advisory Council of Polar Bears International (PBI), and a graduate of last year's AAZK/PBI Leadership Camp is now returning as a facilitator, fulfilling our goal of inspiring and empowering the future leaders of our profession. Keepers are leading two ambitious reforestation projects that will debut at the AAZK National Conference in August, part of their effort to inform, inspire, and empower people to positively impact the many issues of climate change.

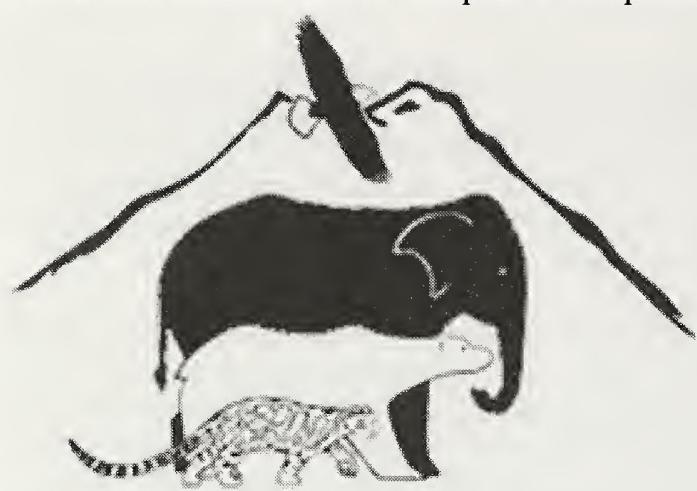


Across the country, local Chapters of the AAZK are hosting Bowling for Rhinos events. Bowling for Rhinos, one of the world's most successful, long-term conservation programs, continues to thrive and protect multiple wildlife conservancies and national parks, four species of rhinos, and countless endangered species which share habitat with rhinos in Africa and Indonesia. As a prominent conservationist once told me, without AAZK and Bowling for Rhinos, Indonesian rhinos may very well be extinct. Zoo keepers being credited with saving species from extinction is high praise indeed.

Throughout our Association, local Chapters, and Committees, zoo keepers are making a difference. Keepers inspire innovation and best practice in professional animal care. Keepers support conservation through fundraising as well as rolling up their sleeves and actively getting involved in conservation programs, even leading these programs themselves. Keepers, serving as frontline educators, foster personal connections between zoo visitors and wildlife in their local institutions. Every day, keepers make an incredible impact on the lives of thousands of zoo animals. Thinking globally, acting locally, keepers are vital to conservation and the zoo industry. AAZK is here to help you succeed. Join or start a Chapter, come to the national conference, participate in one of our professional development programs, apply for one of our many grants, make a positive impact in our profession, this industry, or in conservation. Consider this letter your passport, and as empowerment to transcend those barriers and boundaries and achieve your goals.

**Editor's Note:** We would like to thank all the members of the Pt. Defiance AAZK Chapter located at the Point Defiance Zoo & Aquarium, Tacoma, WA for their generous donation that is helping to underwrite this issue of *Animal Keepers' Forum*.

The Point Defiance AAZK Chapter is comprised of 20 members of the zoological staff, education staff, volunteers, and youth volunteers at Point Defiance Zoo and Aquarium in Tacoma, WA. We meet once a month to eat, socialize, discuss fund-raising opportunities and conservation projects to support, and to vote on fund requests by members for the attendance of seminars and conferences.



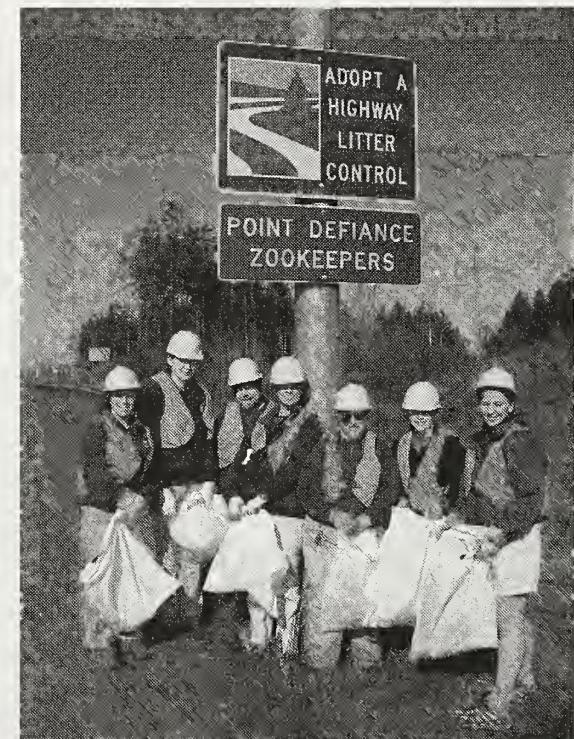
## POINT DEFIANCE AAZK CHAPTER

Rhinos, the Blue Iguana Recovery Program, Hornbill Nest Adoption, and the Animal Asia Foundation. In addition, our Chapter is proud to be the founder of the Clouded Leopard Project. The Clouded Leopard Project has since become a non-profit organization in its own right, but we maintain close ties with it.

Our Chapter holds many different fundraisers throughout the year to raise money for the support of our conservation projects. Our largest fundraiser is a photo booth at the zoo's holiday light display, Zoolights. This event has become a tradition for many families, as they come back year after year to take a picture with our reindeer mascot. Another fundraiser that has become very popular in recent years is Flamingo Flocking. This involves flocks of pink plastic flamingos that migrate to people's yards for a fee, courtesy of a friend or family member. Other fundraisers include providing face painting at the zoo on busy days and for special events, a yearly garage sale, and selling matted photos through the zoo's gift shop.

Besides supporting conservation efforts abroad, we are active in our local community. Point Defiance AAZK participates in the Adopt a Highway Litter Control program. Four times a year we meet to pick up litter on a stretch of highway near the Point Defiance Zoo and Aquarium. This activity not only beautifies the highway, but has led to lots of laughter as we have discovered many strange items by the side of the road, mixed in among the myriad coffee cups and golf balls.

To keep up with Point Defiance AAZK, visit our website [pointdefianceazk.com](http://pointdefianceazk.com) or find our Facebook group by searching Point Defiance AAZK!



Pt. Defiance Chapter members clean up an area near the zoo in the Adopt a Highway Litter Control program.

## **AAZK Announces New Members New Professional Members**

Nicholas Newman, **Bergen County Zoological Park (NJ)**; Dell Guglielmo and Stephen Schulze, **Smithsonian's National Zoological Park (DC)**; Sarah Zynda, **Jacksonville Zoo & Gardens (FL)**; Christy Barnes, **Gulf Breeze Zoo (FL)**; Melody Owens, **McCarthy's Wildlife Sanctuary (FL)**; Lindsey Herron, **Birmingham Zoo (AL)**; Bridget Smith, **Great Plains Zoo (SD)**; Sonya Nichols, **Alexandria Zoological Park (LA)**; Tanya Barton-Garcia, **Dallas Zoo (TX)**; Tammie Anderson, **Houston Zoo (TX)**; Laurel Jackson, **Moody Gardens (TX)**; Marlene Wilkins, **Spring River Zoo (NM)**; Teresa Smith, **Moorpark - America's Teaching Zoo (CA)**; Kelly Davison, **The Living Desert (CA)**. *We do not publish the names of new and/or renewing members who do not list their facility on their membership application/renewal (There were three in July).*

### **Renewing Contributing Members**

Joan Diebold  
Quincy, MA

Vernon N. Kisling, Jr.  
High Springs, FL

Steven M. Wing, General Curator  
Louisville Zoological Gardens  
Louisville, KY

### **Renewing Institutional Members**

Wildlife Wonders - Zoo To You  
Cleveland, GA  
Tom & Hope Bennett, Founders/Operators

Frank Buck Zoo, Gainesville, TX  
Susan Kleven, Director

San Francisco Zoo, San Francisco, CA  
Tanya M. Peterson, Executive Director/President

The Buffalo Zoo, Buffalo, NY  
Donna Fernandes, President/CEO

## **Probe Ordered in Rhino Slaughter**

Nepal's government is investigating the poaching of rhinos in the Himalayan nation after 28 of the endangered animals were killed over the past 11 months.

Prime Minister Madhav Kumar Nepal and Forest Minister Deepak Bohara summoned conservation officials and the chiefs of police and army ordering them to come up with a strategy to halt the killings.

The Rhinos are protected by the government and the forests are declared conservation areas. Security forces are tasked with guarding them, however, increased political turmoil in Nepal has meant their redeployment to urban areas.

"Stopping the poaching is a major challenge for us. There is always an increase in poaching of wildlife in the conservation area when there is political problems," said Department of Forest and Wildlife Conservation official Megh Bahadur Pandey.

Indian rhinos (*Rhinoceros unicornis*) are native to northern India and southern Nepal. Only about 200 remained before tough preservation laws began to be stringently enforced in the 20th century. Now there are an estimated 2,500 in the wild, though rhino poaching remains a serious problem. The last count done in 2008 put the rhino population in Nepal at 435.

The Indian rhino is the second-largest of five living species, about three times the size of a Sumatran rhino (*Dicerorhinus sumatrensis*) at up to 6,000 lbs. (2,700kg), standing six feet (1.8m) tall and 12 feet (3.7m) long. *Source: TheDailyCaller.com 6/14/10*

**THE GOURMET RODENT, INC.**

MasterCard, VISA, American Express, Discover

### **RATS AND MICE**

Bill & Marcia Brant

12921 SW 1st Rd., Ste 107,  
PBM #434  
Jonesville, FL 32669

(352) 472-9189  
Fax: (352) 472-9192  
e-mail: GrmtRodent@aol.com

# Coming Events

Post Your Coming Events Here  
email to: [akfeditor@zk.kscoxmail.com](mailto:akfeditor@zk.kscoxmail.com)

**August 22-26, 2010 - AAZK National Conference.** Hosted by the Philadelphia AAZK Chapter and the Philadelphia Zoo. Conference information, program schedule, online registration and hotel info available at [www.philadelphiazaar.org](http://www.philadelphiazaar.org). A reminder that a \$50 late fee is applied to registrations after 22 June 2010.

**August 30 - September 3, 2010 - 7th International Penguin Conference** - in Boston, MA. Hosted by The New England Aquarium. For info email [ipcboston@neaq.org](mailto:ipcboston@neaq.org)

**September 1 - 5, 2010 - IUCN XIth International Otter Colloquium.** Held in Pavia, Italy. For further info: <http://www.internationalottercolloquium2010.eu/>

**September 11-16, 2010 - AZA 2010 Annual Conference.** Hosted by the Houston Zoo, Houston, TX. See [http://aza.org/ConfWork/AC\\_Intro/index.html](http://aza.org/ConfWork/AC_Intro/index.html) for further information.

**September 7-12, 2010 - National AZAD Conference** Hosted by Brookfield Zoo, Brookfield, IL USA. Call for Papers--Share your ideas by presenting a paper addressing ways people can work to conserve our Earth and all the gifts it gives us. For further information see <http://www.azadocents.org/>

**September 27-30, 2010 - AZA Orangutan SSP® Workshop** - To be held at the Denver Zoo, Denver, CO. Theme: "Conservation & Husbandry Innovations for the New Decade" Climb Up to a Higher Branch at the 4th Annual Orangutan SSP® Husbandry Workshop! - Focused on the care and management of orangutans, the workshop will bring together orangutan caregivers and managers, researchers, and field biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of orangutans. Workshop registration fee is \$125. The workshop will be held in conjunction with the Orangutan SSP® Masterplan meetings which will take place on Sunday, September 26, 2010. For additional information contact Ronda Schwetz at [rschwetz@denverzoo.org](mailto:rschwetz@denverzoo.org). Online registration will be available soon at [www.denverzoo.org](http://www.denverzoo.org). Pre-Conference Trip to Cheyenne Mountain Zoo Sunday, September 26—more details soon!

**September 28-October 2, 2010 - 20th International Zoo Educators' (IZE) Biennial Conference** - at Disney's Animal Kingdom, Orlando, FL. For more information, please visit <http://www.izea.net>

**September 30 - October 3, 2010 - The 32nd Annual Elephant Manager's Association Conference** - Hosted by the Pittsburgh Zoo & PPG Aquarium. Conference will be held at the Holiday Inn Hotel and Suites Pittsburgh-Allegheny Valley-RIDC. A room block is reserved. Call (412) 963-

0600 for reservations. More details will follow on Facebook, in AZA and EMA publications and websites. Contact Terry Deluliis at (412) 365-2500 with questions.

**October 3-7, 2010 - The Aquarium and Zoo Facilities Association's 17th Annual Conference** - To be hosted by the Saint Louis Zoo in Saint Louis, MO. For further program and registration information, please see [www.azfa.org](http://www.azfa.org) or call Sue Stroud at (314) 646-4616; Fax (314) 646-5531; email at [stroud@stlzoo.org](mailto:stroud@stlzoo.org)

**October 14-15, 2010 - Passerine Workshop** Hosted by Zoo Atlanta, Atlanta, GA. The intent of this workshop is to increase knowledge for keepers/newer managers on basic husbandry, breeding, and daily management of various passerine species and sharing of information between institutions. Please contact Sprina Liu, [sliu@zooatlanta.org](mailto:sliu@zooatlanta.org), for more information.

**October 14-20, 2010 - 30th Annual AZVT Conference.** The Association of Zoo Veterinary Technicians will meet at the Los Angeles Zoo in Los Angeles, CA. If you would like more information please visit [www.azvt.org](http://www.azvt.org) or contact Peter Flowers @ [zootekkie@gmail.com](mailto:zootekkie@gmail.com) or call (323) 644-6051.

**October 17-21, 2010 - 65th Annual Conference of WAZA.** To be held in Cologne, Germany. See <http://www.waza.org/en/site/home> for further information.

**December 6-10, 2010 - Training and Enrichment Workshop for Zoo Animals** - Oakland Zoo, Oakland, CA. For information contact Active Environments, Inc. at 805-737-3700 or email Gail Laule at [moonshadowe@earthlink.net](mailto:moonshadowe@earthlink.net) or Margaret Rousser at [margaret@oaklandzoo.org](mailto:margaret@oaklandzoo.org)

**March 2-4, 2011 - Association of Professional Wildlife Educators.** To be held at the Frank Buck Zoo, Gainesville, Texas. Watch <http://www.apwe.org/> for details as they become available.

**May 15th-18th, 2011 - 2011 Rhino Keeper Workshop.** To be held at Fossil Rim Wildlife Center, Glen Rose, Texas. For further info contact: [adam.felts@columbuszoo.org](mailto:adam.felts@columbuszoo.org)

## Upcoming AAZK National Conferences

2010 - Philadelphia, PA - August 22-26  
[www.philadelphiazaar.org](http://www.philadelphiazaar.org)

2011 - San Diego, CA - August 24-28

2012 - Syracuse, NY - September 23-27

For information on upcoming AAZK conferences, watch the AAZK website at [www.aazk.org](http://www.aazk.org)



## DIETS AS DIVERSE AS THE ANIMAL KINGDOM

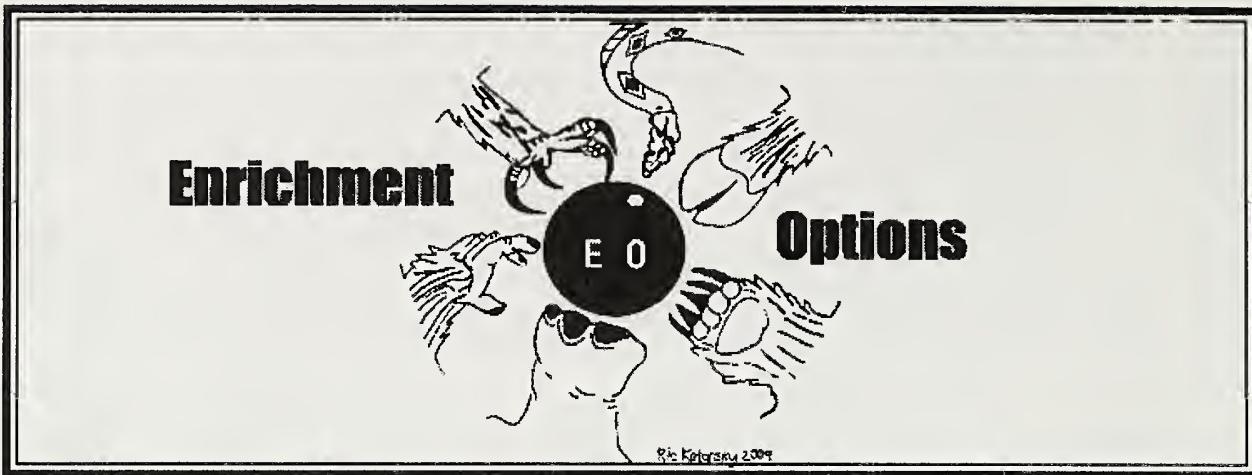
Working in partnership with zoos and aquariums, MAZURI® PhD nutritionists develop industry leading products specifically for each species. From aardvarks to zebras, we work hard to give your animals the most of what they need.

For more information on MAZURI® products—including nutritional analyses and research findings—visit [www.mazuri.com](http://www.mazuri.com)

or call 1-800-227-8941 for the location of your nearest dealer. Because when it comes to great nutrition, we're committed to the health and longevity of every animal.

**Mazuri®**  
The Exotic Animal Feeding Resource

[www.mazuri.com](http://www.mazuri.com)



*EO Editors -*

*Julie Hartell-DeNardo, Oakland Zoo and Ric Kotarsky, Tulsa Zoo & Living Museum*

## **Environmental Enrichment for North American River Otters**

*Sarah Reisberg, Hackman Scholar in Behavioral Husbandry*

*Franklin and Marshall College, Lancaster, PA*

*Maryland Zoo in Baltimore [MZiB], Baltimore, MD*

*Julie Grove, Animal Behavior and Training Coordinator*

*Maryland Zoo in Baltimore, Baltimore, MD*

*Meredith Bashaw, Assistant Professor*

*Franklin and Marshall College, Lancaster, PA*

### **Introduction**

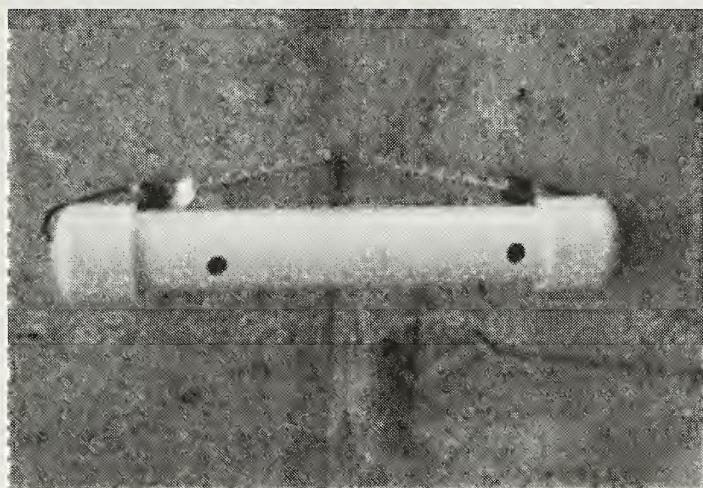
Stereotypic behaviors are unvarying repetitive behavior patterns that have no obvious goal or function in the context in which they are performed (Fox, 1965; Mason, 1991). In animals, they are either not performed in the wild at all or occur naturally but are performed at inappropriate rates in captivity. The presence of stereotypic behavior is often used as an indicator of poor animal welfare (e.g. Broom, 1991; Carlstead, 1998, but see Mason & Latham, 2004). Stereotypic behavior is associated with physiological changes indicative of stress (as reviewed by Mason, 1991) and tends to occur at higher rates in sub-optimal environments (Hediger, 1950). It has been suggested that the performance of stereotypic behavior reflects an inability of the individual to properly mobilize psychological resources to defend against or cope with stressors (Zayan, 1991).

Exotic animals in captivity are rarely, if ever, fed a diet that approximates what they would experience in the wild (Young, 1997). This is a particular problem for animals that use much of their energy in the wild to obtain food (like carnivores) or that obtain food in ways that are very time-consuming (like browsing herbivores). The motivation to forage experienced by these animals is not linked to their caloric intake (Lindström & Redbo, 2000); even if they are full, they continue to be motivated to perform behaviors related to feeding. Diets that consist of readily available or concentrated food sources result in the development and maintenance of stereotypic behavior, which typically resembles feeding behavior (Lawrence & Terlouw, 1993).

Carnivores are at high risk for stereotypies because in the wild they would hunt and travel in search of food and mates, but in captivity they do not usually need to (Markowitz et al., 1995; Mason & Mendl, 1997). North American river otters (*Lutra canadensis*) are small carnivores that not only hunt and travel frequently, but also continue to play into adulthood. These behaviors can be limited by captivity.

## Methods

We observed two otters at MZiB that both exhibited stereotypies; the female (Mary) paced, and the male (Elvis) paced and flipped repetitively. Elvis's stereotypies were severe enough to have caused injury to his paws, and previous efforts to stop him from flipping had been unsuccessful. We introduced two types of enrichment, floating objects and cricket feeders, to the otters at the Maryland Zoo in Baltimore. These had been used successfully with smaller otter species (Foster-Turley & Markowitz, 1982; Neistadt 1995), but their effects on North American river otters had not been documented. In the floating objects phase, we provided various buoys, plastic balls, and a floating raft, with two objects usually present in the exhibit at any one time. The cricket feeders we used (photo at right) were made of PVC pipe with a hole drilled at each end. The pipes were secured out of reach of the otters by attaching them to the rock wall of the enclosures or hanging them from trees inside the exhibit using bungee cords. Pipes were filled with crickets each morning, and the crickets gradually fell out the holes during the day to land in the otter exhibit.



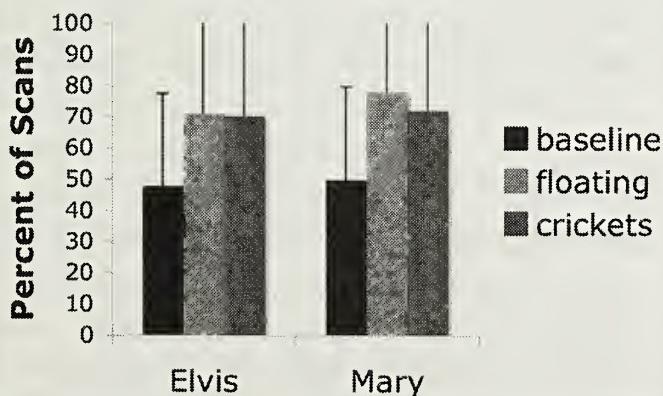
Cricket Feeder

We expected both types of enrichment to produce behavior directed at the enrichment, increase time spent near the enrichment, and to decrease undesirable behaviors such as stereotypies and behavior directed at the barrier between the otters and the keeper who fed them. We expected floating objects to increase social play and contact between the otters and cricket feeders to increase hunting behaviors. Because the goal behaviors differed across time of day, the otters were observed for a 10-minute session in each hour between 1000 and 1600hrs. We used 30-second instantaneous scans to record the otters' behavior, proximity to one another, and location in the exhibit. Three conditions (A=baseline, B=floating objects, and C=cricket feeders) were presented in balanced order (ABC A CBA) over seven weeks of observation. Randomization tests were conducted for each otter across time of day to determine when the behaviors of interest were highest. Using these times, conditions were then compared for each otter. All graphs show means with error bars representing standard deviations.

## Results and Discussion

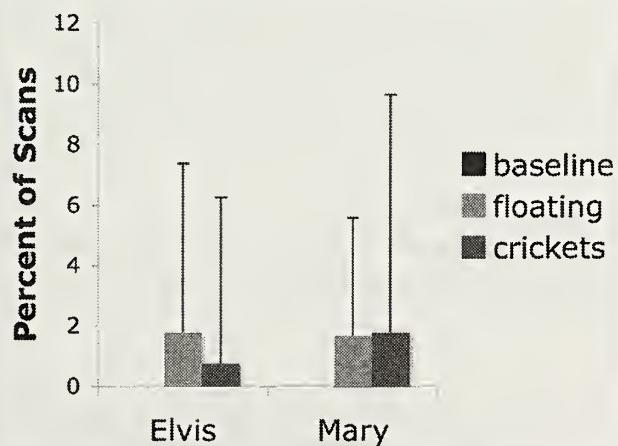
Consistent with our hypotheses, both enrichment techniques were of interest to the otters. The otters spent more time in the locations of the exhibit where enrichment was located and directed behavior toward the enrichment devices (Graph 1). Behaviors observed included playing with and climbing on the floating objects, as well as staring at and hunting under the cricket feeders (Graph 2).

Near Location Where Enrichment Was Added



Graph 1

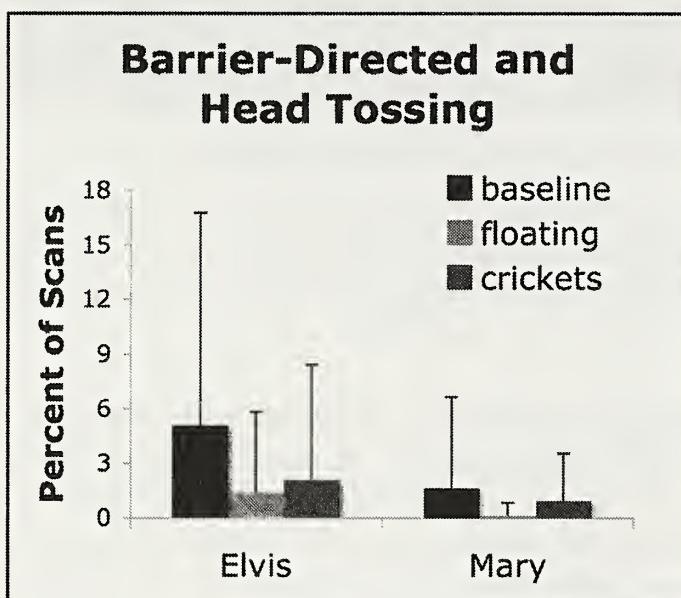
Enrichment Directed



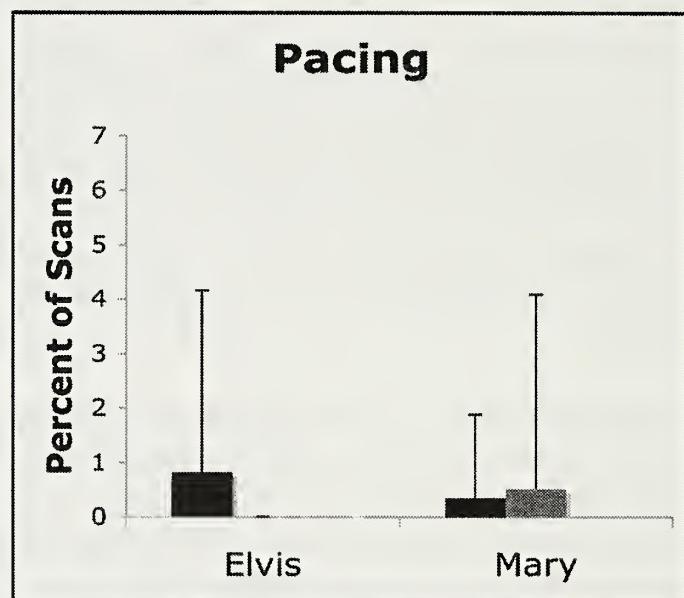
Graph 2

There was a greater difference with the floating objects than the cricket feeders, perhaps because the floating objects were stationary while the crickets could move about the exhibit after they escaped the feeder. Approach responses have been used to indicate preference for an object or pleasure in using it (Désiré et al., 2002), so time spent close to these devices and behavior directed at them suggest the animals enjoyed the enrichment. When implementing enrichment, it is important to consider the desired location of the animals within the exhibit (Tarou & Bashaw, 2007); enrichment can be used to increase visibility by placing desirable items within view of the public.

The effects of these enrichment techniques on undesirable behaviors were less consistent. For both animals, floating objects had a significant effect on barrier-directed behavior and cricket feeders had a significant effect on pacing (Graph 3, Graph 4). Floating objects significantly reduced Elvis's pacing, but had no effect on Mary's pacing.



Graph 3



Graph 4

The different effectiveness of the two enrichment types on different undesirable behaviors may reflect differences in motivation (Carlstead, 1998). Barrier-directed behavior may be linked with travel, while pacing may be more related to hunting. Both pacing and barrier-directed behaviors were relatively rare and did not appear to meet the criteria of "established" stereotypies (Mason et al., 2007). The reduction of these behaviors is consistent with the idea that developing stereotypies may be more effectively decreased by enrichment (Mason et al., 2007).

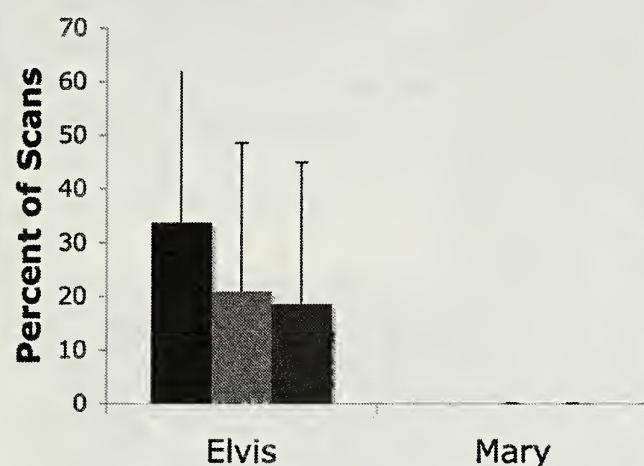
Elvis's flipping was his most common stereotypy and was usually observed in afternoon sessions. The prevalence of this behavior and its persistence despite causing injury qualify it as an "established" stereotypy.

Given that Mason and colleagues (2007) have suggested established stereotypies are more difficult to eliminate than developing stereotypies, the failure of either enrichment technique to have an effect on flipping is not surprising (Graph 5). However, flipping was somewhat lower in the final week of cricket feeders, suggesting that repeated intermittent exposure to hunting opportunities might eventually alter this behavior.

During the floating object condition, we predicted increased conspecific contact and social play. While both of these behaviors went up, only the increase in contact was significant (Graph 6, Graph 7).

The significant changes in contact probably included slight increases in both play (usually wrestling between the two otters) and sleeping together as a result of activity directed at the enrichment devices. Recent work has suggested play and affiliative social interaction can be used as positive measures

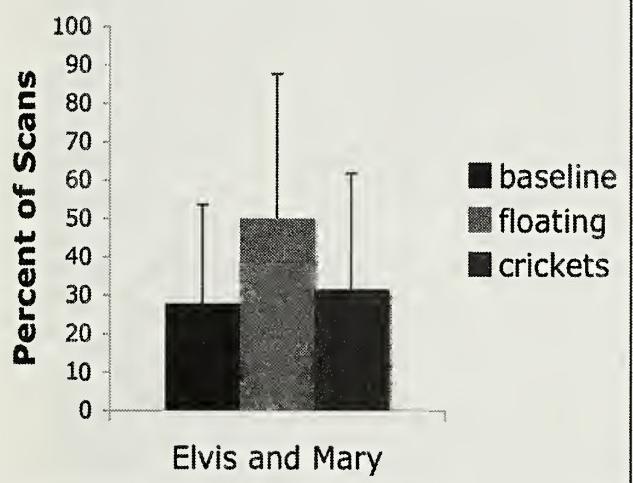
## Flipping



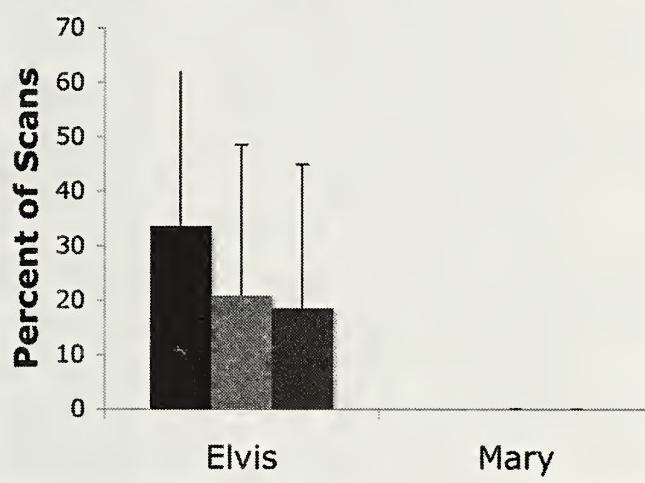
**Graph 5**

of well-being in a variety of species (Boissy et al., 2007; Yeates & Main, 2008), so long as negative consequences (like aggression) are not observed. The increases in these behaviors as a result of floating objects suggests that access to floating objects improved the welfare of the otters despite the mixed results with respect to stereotypic and abnormal behavior.

## Contact



## Flipping



**Graph 6**

**Graph 7**

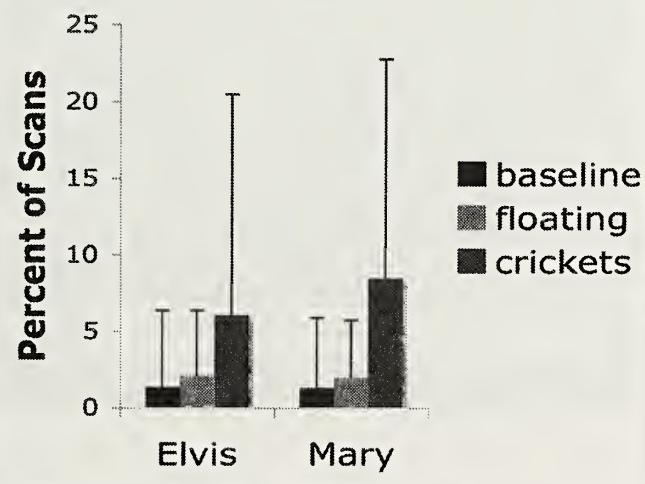
Adding cricket feeders significantly increased hunting for both animals, suggesting that despite their small size, crickets were of interest to North American river otters as prey (Graph 8).

Crickets add negligible nutrients and calories to the diet of an animal the size of an otter (Foster-Turley & Markowitz, 1982), and therefore are an efficient way to provide hunting opportunities for small mammalian carnivores.

**Graph 8**

Overall, we found that providing otters with floating objects and cricket feeders did improve their welfare, increasing positive measures of well-being (play, social affiliation, natural hunting behavior) and decreasing negative measures of well-being (barrier-directed

## Hunting



behavior, some stereotypic behaviors). Both otter enrichment techniques were reinforcing to the animals and achieved their objectives. The reduction in pacing and barrier-directed behavior but not flipping also underscores the importance of intervening to reduce a stereotypic behavior as soon as its presence is noticed, before it becomes established. The increases in the different target behavior for the two types of enrichment and the changes in exhibit use as a function of providing enrichment, supports the idea that planning enrichment should be a goal-directed process (Mellen & MacPhee, 2001).

## References

- Broom D.M. 1991. Assessing welfare and suffering. *Behavioral Processes*. Vol. 25: 117-123.
- Carlstead, K. 1998. Determining the causes of stereotypic behaviors in zoo carnivores. In: D. J. Shepherdson, J. D. Mellen, & M. Hutchins (Eds.), *Second Nature: Environmental Enrichment for Captive Animals* (pps. 172-183). Washington: Smithsonian Institution Press.
- Foster-Turley, P. & Markowitz, H. 1982. A captive behavioral enrichment study with Asian small-clawed river otters (*Aonyx cinerea*). *Zoo Biology*. Vol. 1, 29-43.
- Fox M.W. 1965. Environmental factors influencing stereotyped and allelomimetic behaviour in animals. *Laboratory Animal Care*. Vol. 15: 363-370.
- Hediger H. 1950. Wild animals in captivity. London: Butterworths Scientific Publications.
- Lawrence, A.B. & Terlouw, E.M. 1993. A review of behavioral factors involved in the development and continued performance of stereotypic behavior in pigs. *Journal of Animal Science*. Vol. 71: 2815-2825.
- Lindström, T. & Redbo, I. 2000. Effect of feeding duration and rumen fill on behaviour in dairy cows. *Applied Animal Behaviour Science*. Vol. 70: 83-97.
- Markowitz, H., Aday, C. & Gavazzi, A. 1995. Effectiveness of acoustic prey: environmental enrichment for a captive African Leopard (*Panthera pardus*). *Zoo Biology*. Vol. 14: 371-379.
- Mason, G.J. 1991. Stereotypes and suffering. *Behavioural Processes*. Vol. 25: 103-115.
- Mason G.J. & Latham, N.R. 2004. Can't stop, won't stop: Is stereotypy a reliable animal welfare indicator? *Animal Welfare*. Vol. 13: 557-569.
- Mason, G. & Mendl, M. 1997. Do the stereotypes of pigs, chickens and mink reflect adaptive species differences in the control of foraging? *Applied Animal Behaviour Science*. Vol. 53: 45-58.
- Mason, G., Clubb, R., Latham, N. & Vickery, S. 2007. Why and how should we use environmental enrichment to tackle stereotypic behavior? *Applied Animal Behaviour Science*. Vol. 102: 163-188.
- Neistadt, N. 1995. Otter Choices of Enrichment. *The Shape of Enrichment*. Vol. 4 No. 4: 1-2.
- Shepherdson, D.J. 1998. Tracing the path of environmental enrichment in zoos. In: D. J. Shepherdson, J. D. Mellen, & M. Hutchins (Eds.), *Second Nature: Environmental Enrichment for Captive Animals* (pps.172-183). Washington: Smithsonian Institution Press.
- Tarou, L.R. & Bashaw, M.J. 2007. Maximizing the effectiveness of environmental enrichment: Suggestions from the experimental analysis of behavior. *Applied Animal Behaviour Science*. Vol. 102: 189-204.
- Young R.J. 1997. The importance of food presentation for animal welfare and conservation. *Proceedings of the Nutritional Society*. Vol. 56: 1095-1104.
- Zayan R. 1991. Summary and perspectives: Individual patterns of stress responses. *Behavioural Processes*. Vol. 25: 205-209.

# Desert PLASTICS

Albuquerque, New Mexico  
Toll-Free: 1-866-793-0376  
Fax: (505) 884-3932

[www.desertplastics-abq.com](http://www.desertplastics-abq.com)

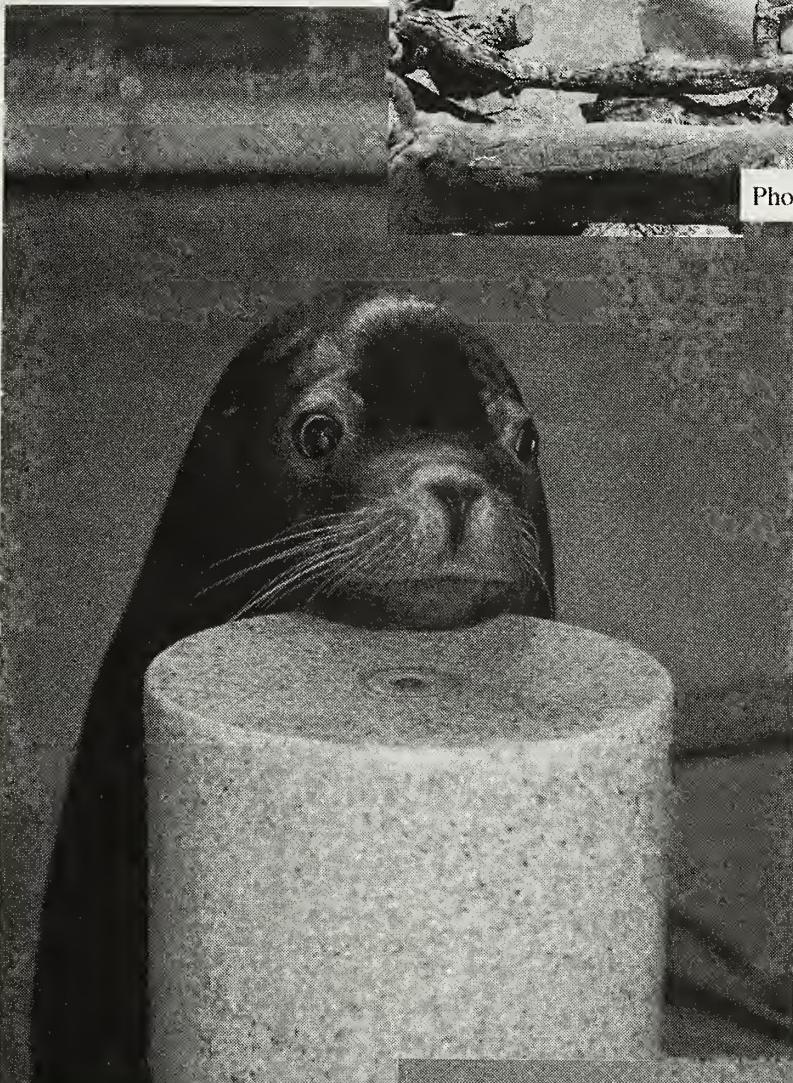


Photo courtesy of  
Mystic Aquarium

Food Grade Plastic

30 Colors

4 wall thicknesses

Customization  
Available

Email us at  
[info@desertplastics-abq.com](mailto:info@desertplastics-abq.com)  
for Monthly Specials!

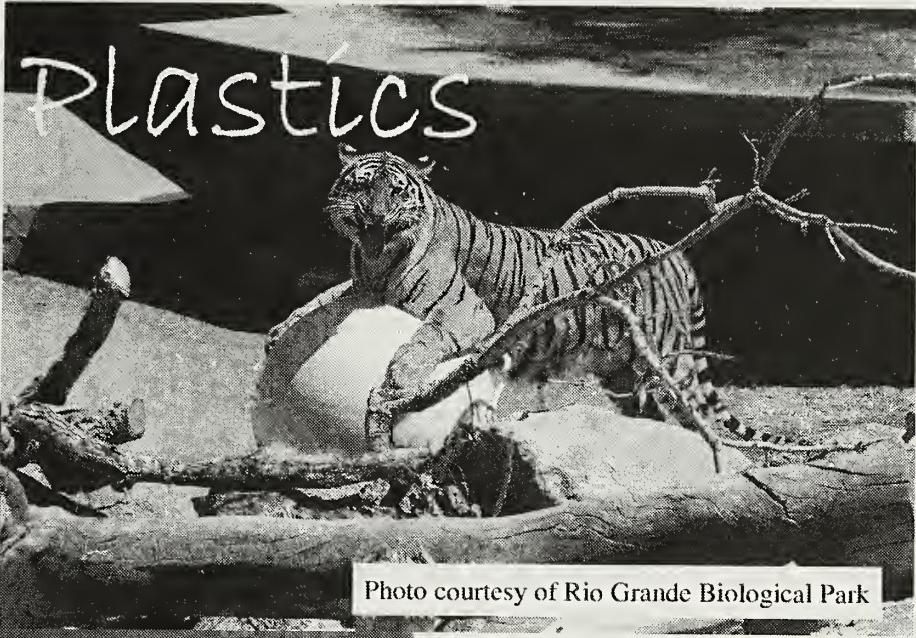


Photo courtesy of Rio Grande Biological Park

## Enrichment

Basic Shapes  
Mirrors  
Feeders

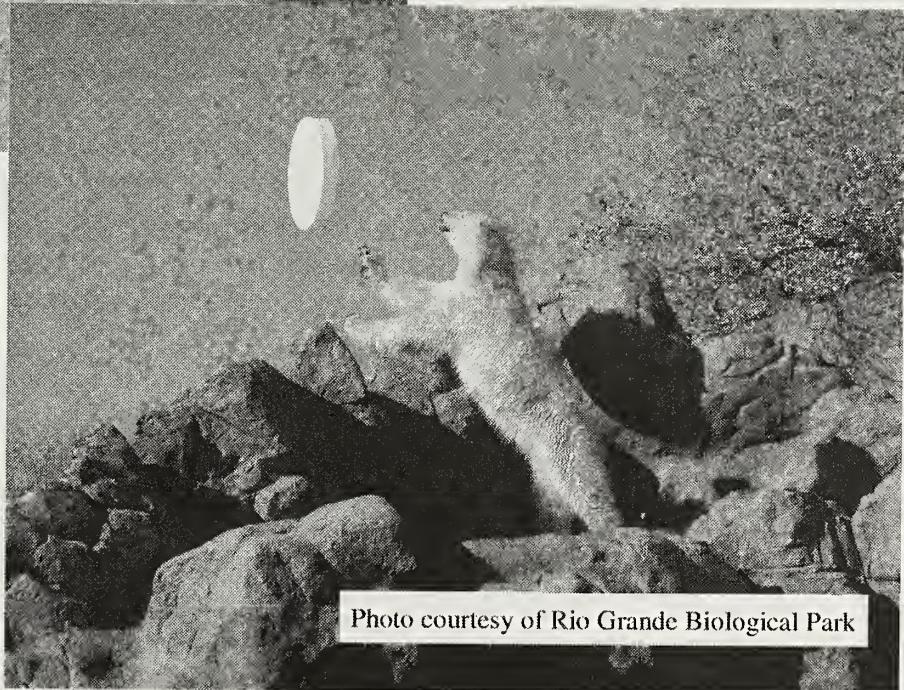


Photo courtesy of Rio Grande Biological Park

# People Skills For Animal People



## Resolving Work-Related Conflicts

By Kathleen Krentz, M.A.

KM Training and Consulting Services LLC, Lafayette, CA

[www.KMTrainingServices.com](http://www.KMTrainingServices.com)

The word “conflict” often has an immediate, negative connotation when we see or hear it—something to be avoided. At best, workplace conflicts are the stuff of “war stories” shared with friends and at the worst, impetus to leave a job that otherwise offers a lot of reward. When a conflict is resolved successfully, relationships can gain new strength and resiliency. For team leaders, the absence of conflict isn’t the measure of effective leadership; that’s demonstrated by what the leader does to help team members work together constructively when conflicts inevitably arise. So how can a conflict be handled to increase the odds of a positive outcome?

### ***Conflicts Happen***

Because each of us is unique in our perspective on the world and comes to the job with distinct life experiences, conflict between individuals in the workplace is far from an unusual occurrence. Simply because people care deeply about their work does not guarantee they will always see things the same way. The more passionate we are about what we do, the higher the likelihood that there will be conflicts!

A helpful way to view workplace conflict is as a difference. Differences have their source in one of four major areas:

- Facts
- Processes
- Objectives
- Values

Fact-based conflicts, where there is a different understanding of what happened or other objective information, are usually the easiest to resolve. These conflicts may be termed “misunderstandings.” One or both parties may be missing important information about an issue or situation that when added or clarified, immediately reconciles the parties. They can return to working productively with one another.

Conflicts about the way work gets done may be a little more challenging. If the conflict is based in a misunderstanding of a feeding or training protocol, for example, then reference to the established protocol could clear up the conflict quickly. But most work methods involve judgment and preference, and these individual differences may be more challenging to resolve than fact-based conflicts.

More difficult still are work conflicts about goals, perhaps training objectives or exhibit characteristics. Two people may agree on the facts and even concur that, if the objective were shared, the process or protocol would be appropriate. But they may vehemently disagree about whether the objective itself is worthwhile, perhaps whether it’s in the best interests of an animal or the institution itself.

Values-based conflicts are typically the most difficult of all to address and resolve constructively. Whether the conflict is about who’s best equipped to determine what form of prescribed medication should be administered or what enrichment has the highest priority, values touch a personal “nerve” that is rooted in our sense of right and wrong. Emotions are often an important influence on our view of a values-based conflict with a co-worker, whether that person is another keeper, a veterinary technician, an administrator or a director.

### ***Conflict Can Be Good***

Depending on our previous life experiences with conflict, whether in our families or in the workplace, we may simply want to avoid conflict all together—ignore it if we can. Seeing two competent, valuable team members work around each other, choosing activities to preclude any interaction that isn't absolutely required, can be a painful lesson. Or you may have been one of "us" in a department that regarded another department as "them." Conflict can be destructive when it polarizes individuals or groups. Anyone who has addressed a difference with a co-worker, only to have nothing change or the situation get even worse, might believe that avoiding conflict at all costs is the best course of action.

Conflicts with a boss can take on an even riskier dimension in our minds. Some may imagine that confronting a difference directly with a supervisor could make life miserable, if not be "career limiting."

But it doesn't have to be that way! Taking the initiative to focus on a situation, an issue, a decision or a behavior that represents a difference in understanding, methods, objectives or values can have a positive outcome. Conflict can be constructive when it opens discussion and results in understanding about differences. Situations and relationships are improved when the discussion identifies alternative resolutions and the problem is solved.

And just as a conflict may not go away on its own, every significant difference does not require us to lunge headlong into confrontation. The first step is to challenge ourselves regarding our reaction: Does the conflict have an impact on or potential consequences for our work? Am I able to focus on what's happening and the results, and less on how I feel about it?

Successful conflict resolution starts with acknowledgement that the other person has a perspective and intention that is not completely known to us—but which must be respectfully integrated into the solution.

### ***Assertive Steps to Confront Conflict***

Like "conflict," "confront" is another word that can elicit a wary reaction. The root of the word "confront" simply means to face, to encounter, to meet. When we confront conflict, we come face-to-face with differences.

Confrontation also is frequently associated with aggression. Effective conflict resolution requires assertive behavior, not aggression. Being assertive means you clearly describe your thoughts and needs, while also acknowledging directly that the other person's views and needs are as important as your own.

Because the most challenging conflicts often involve an emotional component, it's best to employ a communication model and plan key phrases ahead of time. Many people find that the exercise of writing their observations, reactions and key phrases helps to organize their thinking so they can be more articulate in dialog. While it's not necessarily a good idea to sit down to discuss difficult issues with a pile of notes, taking time in advance to clarify what you want to say can make a world of difference in how the conversation goes!

Here are seven steps to follow when you come face-to-face in conversation about significant differences:

**1. Make an opening statement that involves both parties.** Let the other person know you realize that he or she cares about the issue, too. It might sound something like this: "I realize we both care very much about the recent change to the lemurs' diet, and hope we can put our heads together to resolve an issue that's come up."

**2. Objectively describe the situation, issue, decision or behavior.** You might begin with: "Let

me start by describing what I've noticed lately." Make your description succinct, focusing only on the most important facts and observations. Don't make it a "laundry list" of accumulated problems! This is the time to be specific about what has happened or is happening, not on your opinions or concerns.

**3. Give specifics about the impact or potential effect on your work or your team's work.** Move quickly to the "so what"—how the situation, issue, decision or behavior has negatively impacted your work or may do so. Give concrete examples. If appropriate, this is also the opportunity to briefly describe how the conflict affects you personally.

**4. Ask directly for the other's person's perspective.** Steps 2 and 3 shouldn't take more than a couple of minutes. After all, that's a long time to listen to someone else tell us that he or she doesn't agree with us or that we've made a mistake! Try to minimize the normal defensive reaction by making your opening statements to the point and by quickly asking how the other person sees things. If you're disturbed by an announcement made by a manager, ask the manager to help you understand the reasons behind the decision. Listen without interrupting and ask questions to clarify your understanding.

**5. Agree on the problem that needs to be solved.** This is the balancing point of the discussion. Re-state as clearly as you can what the differences are and get the other person's agreement on your summary. Next, get agreement that resolving the difference is important. Remember not to jump ahead to a potential solution!

**6. Discuss alternatives and agree on a resolution.** The resolution to a conflict depends on a variety of factors, including the relative importance of the issue to each of the parties, any disparity in authority, regulatory or institutional requirements, and so on. One party may find after discussion that accommodating the needs of the other is the best solution. Rather than "giving in," call out that you are choosing to accede to the other person's position in this situation, based on the circumstances. Compromise, where each person gets part of what they want and neither gets all of what they want, may be the most workable outcome. A creative, collaborative approach, where both people look for a hybrid that meets all, or almost all, the needs of both is ideal—but also takes the most time. No matter what the outcome, be sure to define clearly what each person will do as his or her part of the solution. Agree on a follow-up date and time to talk about whether the resolution is effective and how things are going.

**7. Express your appreciation.** After the challenges of confronting a conflict, this may seem counter-intuitive. Yet it's appropriate to thank the other person for giving time and energy to the dialog and working with you to build greater understanding. Be optimistic that the agreed-upon approach will return you to a constructive working relationship and solve the problem!

When you take time to plan and confront strong differences assertively and respectfully, you set an example for others of how to handle conflict. Not only can you head off accelerating friction, but you can actually create better workplace relationships. Of course, no one can control the behavior of other people, including their participation in a conversation that begins in opposition. But taking the initiative to resolve differences that interfere with a constructive work environment using an effective communication model vastly increases the likelihood of a positive outcome for all.

© KM Training and Consulting Services LLC 2009 All rights reserved.  
Reproduction or distribution prohibited without prior written permission.

**Next Month: Steps for Creating a Safe Environment for Giving Feedback and Resolving Differences**

## Get your shopping list ready!

At the 2010 AAZK Conference in Philadelphia special pricing will be available for all AAZK products. If you are attending the conference bring this list for all your friends, family and co-workers (think early Christmas shopping!) If you are not attending the conference give this list to someone who is!!!!

### **MERCHANDISE**

	Number	Price	Total
NEW! License Plate Cover		@ \$ 4.00	\$ _____
NEW! Rhino Note Cards		@ \$15.00	\$ _____
Keeper Profile DVD		@ \$12.00	\$ _____
Wrist Coil		@ \$ 1.00	\$ _____
Clicker		@ \$ 1.50	\$ _____
<b><i>Wrist Coil/Clicker Combo</i></b>		@ \$ 2.00	\$ _____
Lanyard		@ \$ 4.00	\$ _____
<b><i>Lanyard/Clicker Combo</i></b>		@ \$ 5.00	\$ _____
Logo Pins		@ \$ 6.00	\$ _____
Logo Patches		@ \$ 8.00	\$ _____
Vinyl Logo Decal*		@ \$ 2.00	\$ _____
Logo Window Sticker*		@ \$ 2.00	\$ _____
Eye Movement Tote Bag*		@ \$ 2.00	\$ _____
<b><i>Conference Combo Price 3 for \$ 5.00*</i></b>		@ \$ 5.00	\$ _____

### **CLOTHING**

Black Fleece <b><i>Closeout Price!</i></b>		@ \$30.00	\$ _____
Blue Fleece <b><i>Closeout Price!</i></b>		@ \$30.00	\$ _____
Long Sleeve Gray T <b><i>Closeout Price!</i></b>		@ \$10.00	\$ _____
Short Sleeve "Eye Movement" T		@ \$15.00	\$ _____
Long Sleeve "Eye Movement" T		@ \$17.00	\$ _____
Logo Ball Cap		@ \$12.00	\$ _____
Logo Winter Hat		@ \$13.00	\$ _____

### **PUBLICATIONS**

AKF Avian Issue		@ \$20.00	\$ _____
AKF Cheetah Issue		@ \$ 3.00	\$ _____
AKF Polar Bear Issue		@ \$ 3.00	\$ _____
AKF Geriatric Animal Issue		@ \$ 7.50	\$ _____
AKF Crisis Management Issue		@ \$ 7.50	\$ _____
<b><i>AKF All 5 Dedicated Issues</i></b>		@ \$30.00	\$ _____

### **CD's:**

Crisis Management		@ \$18.00	\$ _____
Biological Info - Selected Mammals		@ \$ 3.00	\$ _____
Enrichment Notebook		@ \$ 3.00	\$ _____
<b><i>Bio/Enrichment Combo</i></b>		@ \$ 5.00	\$ _____
Zoonotic Diseases - 3rd Edition		@ \$ 5.00	\$ _____

**View all the AAZK Merchandise @ <http://aazk.org/shop/>**

# REACTIONS

## A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr., Curator

In-Sync Exotics Wildlife Rescue & Educational Center,  
Wylie, TX



### Question

We are preparing to renovate our cat exhibit. Are there any specific points we should focus on?

### Comments

The best way to look at this scenario is from two different angles. One, what you are looking for in regards to the enclosure layout and features? Two, what you are looking for in regards to the night house design and function?

#### Enclosure Features

- Is the facility developed for keeper, service vehicle, and heavy equipment access? In other words, will the designer provide for long-term access to the exhibit itself, otherwise the staff would have serious problems getting into the exhibit area for landscaping and repairs?
- Is the landscaping just an accent or has it taken over the perimeter of the area to the point of no return. It's important to have the capability to observe your cats for behavioral cues during the introduction process or what might be leading indicators of veterinary health issues.
- Does the exhibit area have adequate security to prevent public interaction with the cats? Secondary guardrails should be strong enough to prevent trespass and distant from primary containment caging. Also, holly bushes, palmettos, and cactus do a great job of keeping the public where they belong.
- Has any thought been given to night security? Night lighting should provide adequate light should the need arise. If the exhibit is expansive there should be enough security lights to enable the staff to see the entire yard at a glance, especially in an after-hours emergency or natural disaster situation.
- Architects often have trouble understanding drainage flow patterns surrounding an exhibit. All too often the exhibit is flooded from the public areas during heavy rains. Always direct water flow away from the exhibit into storm drains and if at all possible, put the exhibit on slightly higher ground.

#### Night house Features

- The first item that should be noted is whether or not the entry has double containment. This "airlock system" is often times the only thing between the cat and freedom. Also, do the doors swing inward and close backwards? There is nothing more embarrassing than having the animal out of primary containment, pushing the outer doors open, and then going for a walk. Also, is the view window historically up at the top of the door? You know what I'm talking about. There's this little 5"x5" window that is six feet off the ground and you are supposed to see the keeper corridor and what's waiting at the door. Consider replacing this type of window with a 6"x36" vertical rectangular window, (reinforced tempered glass or Lexan®) so that you can really see what is on the other side of the door.
- Are the internal corridors laid out so that you can effectively see end to end? Architects often put

in corridors at right angles. A good night house doesn't have blind spots. If blind spots exist in your holding areas, have they been retrofitted with mirrors so you can see the cat before he can see you?

- Do the floor, corridor, and exhibit drains really work? Masonry contractors are notorious for deciding on their own what type of slope and brush finish your floors get. Don't forget drain size. I can't count how many night houses I have seen that have 1" lines instead of 3" or 6" lines to handle water volume.

- Is the guillotine door system an afterthought? Does it stick if you look at it wrong? The best design I have seen to date is produced by Corners Limited. They utilize stainless steel doors in a corrosion-free frame. The door actually rides on two coated rails that keep the fall and lift even. The cable rides inside a conduit that is connected by internal pulleys that prevents the cable from binding or jumping. Also, as a side note, don't forget to make sure that the conduit or cable system you are using is routed where keepers can visually inspect it.

- Ventilation. Is your night house a sauna? Ventilator fans can reduce ambient heat. Don't forget air conditioning, heat, and circulating fans. In high humidity areas think about adding an in-line dehumidifier to your air conditioner. If you are uncomfortable, chances are the cats are too.

- With many of the current developments in operant conditioning and desensitization work, there are a few items you may want to include in the development process. Restraint chutes that are in-line with shift corridors leading out onto exhibit are helpful for veterinary procedures. Also, consider the possibility of including training areas adjacent to night holding to facilitate your training sessions. I find it helpful when training to have a private quiet area to introduce new behaviors or refine existing ones.

- Finally, has thought been giving to crisis management? The following equipment should be handy if needed: Fire extinguishers (CO<sub>2</sub> and ABC), smoke detectors, carbon monoxide detectors, pepper spray canisters, back-up emergency lighting, back-up power for hot wires (battery or generator), restraint cages, shields, and even firearms. Also, is the keeper work area, kitchen, or bathroom centralized? This way if something does go wrong, there is a safe, secure, integrated area. Ideally, this area should be equipped with a telephone, back-up radio, and serious containment such as reinforced doors or a viewing window of reinforced tempered glass or heavy Lexan® construction.

## **Hardcopy**

Two scientific papers come readily to mind that really are solid resources I would recommend:

"The Process of Exhibit Design and Construction: How it Affects Crisis Management"  
by Ken Kaemmerer

"Houston Zoo Cat Facility Safety Review: A New Era in Animal Containment Design"  
by David Ruhter

These papers are also available in **AAZK's Resources for Crisis Management in Zoos and Other Animal Care Facilities**, Visit: <http://aazk.org/shop/publications/aazk-crisis-management-cd/>

## **Internet**

I also recommend the ZooLex Zoo Design Organization, which is a non-profit organization independent from companies and organizations. It relies on the support of subscribers, members, sponsors and well-wishers to fund its activities. The ZooLex Zoo Design Organization was established to help improve holding conditions for wild animals in captivity by publishing and disseminating information related to zoo design, by promoting appropriate holding conditions for wild animals in

captivity, providing balanced technical information and advice about zoo design, supporting research, and vocational training.

ZooLex Zoo Design Organization, Sobieskigasse 9/12, 1090, Vienna, Austria  
Phone/Fax: 0043-1-3101060  
Email: [zolex@zoolex.org](mailto:zolex@zoolex.org)  
Website: [www.zolex.org](http://www.zolex.org)

## Conclusion

Most of the points that were just covered can be resolved during the design phase. It's imperative that the direct animal managers be part of this process. The development or renovation of a cat exhibit often takes six months to a year, construction six months to two years, and at any point design changes can be made. Even after the job is underway, change orders can always be made, (for a fee).

**Next Column's Topic:** Our facility is working on a new exhibit, what types of primary containment are available?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

*(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, Curator, and Director at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)*

## Browse and Toxic Plants

Saturday, September 18, 2010 - San Diego Zoo  
Register Now—Space is Limited!

The Association of Zoological Horticulture (AZH) offers two professional development courses each year in conjunction with the AZH Annual Conference. Those who successfully complete a course earn two credits toward the 10 credits required for AZH Zoo Horticulturist Certification. Our 2010 courses include one that will also be valuable to zoo animal care staff. AZH invites AAZK members to join us in San Diego for Browse and Toxic Plants.



The new AZH Zoo Horticulturist Certification course is focused on two broad but interwoven topics: browse and toxic plants. Offered to animals as a dietary element or behavioral enrichment, browse may also divert animals' attention from landscape plants in a zoo habitat. Some plants, either in an exhibit or within reach, may be toxic to animals, depending on geographic location, the season, the animal's behavior, the plant parts or amount ingested. There are also non-toxic hazards from plants, such as ingesting excessive fiber or skin reactions to ornamental grasses. Hosted by the San Diego Zoo, this course will provide participants with an introduction to how plants are utilized for nutritional requirement, enrichment and landscape protection. It will also include a general overview of plant toxicity that is specific to zoos.

Lecture, touring Zoo facilities and interactive group discussion will incorporate specific examples and enable participants to share ideas from their own experience. Course participants from both small and large organizations will benefit by gaining the skills and tools they need to: develop and harvest a browse garden; import browse if needed; collaborate with veterinary and nutrition staff to determine plants that are safe and appropriate to meet animal needs for nutrition and enrichment; work with keepers to track browse use; recognize the characteristics of plants that are toxic to zoo animals, and receive resources to obtain specific information that is relevant to their region.

**Cost:** \$200 for AZH members; \$250 nonmembers

Register online: [www.azh.org](http://www.azh.org)

The AAZK Behavioral Husbandry Committee Presents

## Training Tales...



*Where you can share your training experiences!*

*Training Tales Editors – Jay Pratte, Omaha’s Henry Doorly Zoo;  
Kim Kezer, Zoo New England; and Angela Binney, Disney’s Animal Kingdom*

### Tinamou Training 101

*By Kyla Hershey, Aviculture Intern  
Tracy Aviary, Salt Lake City, UT*

#### Introduction

Elegant Crested Tinamou (*Eudromia elegans*) are not necessarily known to be difficult birds to train; they seem to be curious by nature and are not particularly aggressive. On the other hand, if they are a beginning trainer's first challenge, they can prove to be anything but an easy task. Patience, good record keeping, acceptance of problems, and willingness to change strategy all aided in this first-time trainer's success. By the time my four-month internship was completed, all the Tinamou in Tracy Aviary's collection were either shift, station, scale-trained, or all three.

#### Training Purpose

Training started as a means to safely observe proper lock-in temperatures without the stress of capture. These birds have access to an outdoor aviary even in the winter and didn't always want to come inside for the keeper at the end of the day. Because these birds were getting caught up so often, they had a tremendous fear of the keeper or anyone wearing the forest green color shirt that the keepers wear. A training plan was set up to have them willingly shift inside to the sound of seeds being shaken in a metal food pan. The keeper needed someone who had time to consistently work with them every day to shape this behavior in minimal time to relieve stress for both the animal and the keeper; the perfect project for an intern!

#### Training Background

A specific training challenge was that each pair of Tinamou was housed in very different exhibits. The first pair I began working with will from here on out be referred to as "pheasantry" Tinamou because they were housed in an area of the aviary the keepers called pheasantry. Their exhibit was an outdoor, mixed species aviary with access to an indoor holding space via a ramp up to a shift door. The second group, assigned "BYB" for Back Yard Birds Tinamou, once again referring to the area of the aviary they were housed, was a bachelor pair in an outdoor walk-through mixed species aviary with an indoor holding space where their food and water were kept. The third set of Tinamou, known as "BS" for bird show, refers to the area of the aviary that the bird show department's birds were housed. The BS Tinamou were split between two off-exhibit holding spaces. One space contained a breeding pair and right next door in the other space was a single female. The BS enclosures were small sand floor mews. Since each exhibit was so different and the Tinamou themselves were all individuals, it didn't take long to realize that different approaches would need to be taken for training each group.

## Shift Training

The first group of Tinamou I worked with was Pheasantry. The cue I used was shaking seeds in a metal food pan from inside the holding area; it was an easy, distinct sound that the Tinamou already had a positive association with. When first beginning the training, a verbal bridge of "good" was used when one or both came close to the shift door, then a few seeds were immediately tossed close to them. I tossed seeds closer and closer to the door and the Tinamou followed them. I then baited the wooden ramp leading up to the shift door with seeds. As they walked up the ramp I said, "good," and tossed seeds at the bottom of the ramp inside holding, hoping they would see the seeds and follow them. As they walked down the ramp inside, I tossed more and more seeds their way saying, "good." This behavior was learned very quickly (within a week); however, they were still very nervous around people, and I couldn't move much while training apart from tossing them seeds. I learned to lead them over to one side of their enclosure far away from the shift door by tossing seeds that way because they would get scared, scatter, and quickly run up the ramp back outside when I would get up to close the shift door. They were still very skittish around people at this point. For the hope to eventually alleviate their "scatter" tendencies their training was continued after the shifting behavior was established. A couple of BYB and BS Tinamou were

exhibiting the same behaviors, and it was proposed that training should occur for them also. Shortly after, it was decided that all the Tinamou in the collection would benefit from this training.



Pheasantry Tinamou shift ramp.

(Photo by author)



Pheasantry Tinamou using their shift door. (Photo by author)

## First Time Shift Training Struggles and Solutions

I tried using aforementioned methods as an experimentation to train the others. The only difference was..... well everything. I faced some problems early on with training when I tried to apply the same procedures to different birds in different enclosures. I realized quickly that each pair of Tinamou was different from the other and, therefore, I had to individualize the training for each pair. For example, BYB Tinamou would shift inside only when the trainer wasn't standing in the tiny holding space. BYB also faced some aggression from another bird in their exhibit while they were learning. BS's enclosures did not contain shift doors for them to shift through so there was a question of where to shift train them.

To address the problem with BYB not shifting inside such a small space, I experimented with opening the door to their run inside to make the space bigger. This did not work because it only opened the space up about another foot or two. They would shift inside to the sound of the seeds but would quickly shift back outside as soon as they got the reward or saw me. I also tried leaving a pan of seeds in the run inside holding so they could eat it when they shifted in without me being in there, but this only resulted in one of the two hearing the cue, rushing in, eating all the seeds, and shifting back outside before the other one could even shift inside. Finally, I accepted defeat and went outside to see if they would just shift to me. This worked beautifully. They came over right away and were even eating out of my hand by the end of the session. It was amazing to me that they were too scared sometimes to even eat their reward while inside, but outside in their exhibit they would eat out of my hand. Space was the issue for these birds.

Once BYB training started taking effect outside, the Tinamou started becoming victim to aggression from a Southern Lapwing (*Vanellus chilensis*) in their exhibit. She would creep over during the training session and chase the Tinamou away, vocalizing at them. Fortunately, the Lapwing was shift-trained so she was easy to lock in while I was training the Tinamou, but this still took time away from their session. I couldn't figure out why she was behaving this way. One day when the keeper and I were giving out dietary enrichment to all of Back Yard Birds, we gave the Lapwing her favorite, meal worms, from the same small round metal bowl I put the seeds in to cue the Tinamou for their training. The Lapwing was aggressive toward the Tinamou during their session because she was used to getting treats out of that pan, but wasn't getting them when the Tinamou were being trained. Bingo! The next day a different metal pan was used and the Lapwing stayed out of our way.

A solution for the next problem, where to shift the BS Tinamou, came from a procedure I used with the pheasantry Tinamou during inclement weather. I still trained the pheasantry pair even when they were locked inside all day due to inclement weather. Instead of making them come through a door and up a ramp, they were just simply asked to shift to a sound. I would crouch down in one corner of their exhibit, shake the seed pan, and they would come to the sound. I would then walk to the opposite corner of their exhibit and do the same thing just to keep the behavior fresh in their mind. It was important that they got training as much as possible when they were first learning. This method was used for the BS Tinamou since they did not have shift doors. The behavior was learned by all very quickly, within a week.

### Scale Training

Since training seemed to be so beneficial for the Tinamou and the intern alike, scale training was the next challenge. A green fake turf mat was placed on top of a mail scale to make it more natural looking. To get the Tinamou used to the turf mat on top of the scale, a replica was placed in each pair's exhibit for the days preceding the beginning of the training. Once a day seeds were scattered on the green mat in the exhibit for the Tinamou to forage on. Scale training began with using the green mat only, no scale. Once they were desensitized to the green mat, a scale was brought in with the mat placed on top of it.

### First Time Scale Training Struggles and Solutions

When scale training first began, the Tinamou were eating out of my hand well, but were still very timid. I couldn't move my hand or body at all while rewarding, otherwise they would run away. I tried using bridges in the beginning. A verbal bridge was experimented with but was quickly thrown out because it frightened them. In this case, no bridge worked well.

Another problem, training two birds at one time, proved to be difficult in many ways. Primarily, when training began for BS, one Tinamou was extremely timid and would only eat seeds thrown directly at her feet while the other Tinamou in the enclosure was curious and would come right up to eat out of my hand. I had to keep the curious male occupied with one hand while I tossed seeds one by one to the female with the other hand. Often the male would stop eating from my hand and chase the seed I tossed to the timid female.

Another obstacle was finding a way to only deliver the reinforcer to the appropriate bird. I modified the way I was holding my hand near the scale so only the



Reinforcing BYB Tinamou on their stations.

(Photo by Kiersten Meader)

Tinamou on the scale would get the reward. Since the scale was a few inches high, I held my hand high enough so only the Tinamou on the scale could reach it. This worked for awhile, but then the other Tinamou would peck at my hand until I dropped some seeds. This not only caused aggression toward me, but it caused aggression between the two of them. They fought with one another over the scale in order to get the reward. I couldn't figure out how to move forward with these two problems lingering.

I knew these problems had me at a road block so I sought help. Training consultant, Phung Luu, watched one of the sessions with each of these pairs, a simple and genius suggestion was made: station train. Have two stations for two birds, not just one. Genius! Why didn't I think of that? From that point on, a second green mat was brought into the exhibit along with the scale and the Tinamou were rewarded for either being on the green mat or the scale. This separated them and gave the one Tinamou not on the scale something to do.



BYB Tinamou staying on their stations without being constantly rewarded.

(Photo by Kiersten Meader)

Seeking help wasn't the only thing that assisted me when I was stuck; keeping detailed records of each session also helped me move forward. Looking back on previous training sessions in writing allowed me to pinpoint what I was doing wrong at the moment and change it. I wrote not only what was going well but also what wasn't working. When I moved on to training the next pair of Tinamou, I looked back on my training log and bypassed things that didn't work, making the process go faster. This also allowed others to read what I was doing and give suggestions for ways to improve.

### Conclusion

This training has served a great purpose for the Tinamou in the Tracy Aviary collection. They no longer scatter and hide when they see a green shirt but rather now happily train well even during breeding season while laying eggs and just minutes after being caught up for routine vaccinations.

#### **BHC Comments by Angela Binney:**

This project is a great demonstration how there is no one way to train a behavior. Trainers quite often have to adapt their projected plans to suit the needs of the individual animals based on what works or doesn't work in each situation. The fact that the project was assigned to an intern who, presumably, had no preconceived notions about the situation was a bonus. The ability to train all three sets of birds was remarkable because she was able to draw from the experience in each training scenario and adapt the program as she went. Congratulations on your success, Kyla!

### Upcoming AZA National Conferences

**Sept. 11-16, 2010 - AZA 2010 Annual Conference** - Hosted by Houston Zoo, Houston, TX.

**Sept. 12-17, 2011 - AZA 2011 Annual Conference** - Hosted by Zoo Atlanta, Atlanta , GA

**Sept. 8-13, 2012 - AZA 2012 Annual Conference** - Hosted by Phoenix Zoo, Phoenix, AZ

**Sept. 7-12, 2013 - AZA 2013 Annual Conference** - Hosted by Kansas City Zoo, Kansas City, MO

For info on AZA Conferences, see [http://aza.org/ConfWork/AC\\_Intro/index.html](http://aza.org/ConfWork/AC_Intro/index.html)

## ***Nominations for the 2012 Indianapolis Prize Open until January 21, 2011***

Nominations for the 2012 Indianapolis Prize (<http://www.indianapolisprize.org>), the world's leading award for animal conservation, will be accepted from now until January 21, 2011. The \$100,000 biennial award is given to an individual animal conservationist who has made significant achievements in advancing sustainability of an animal species or group of species. It represents the largest individual monetary award for animal conservation in the world and is given as an unrestricted gift to the chosen recipient.

Anyone can nominate a candidate for the Indianapolis Prize. To be accepted as nominees, individuals must have accomplished a personal achievement or series of achievements that have resulted in a demonstrable positive impact on a species or group of species that is likely to improve the species' likelihood of long-term survival.

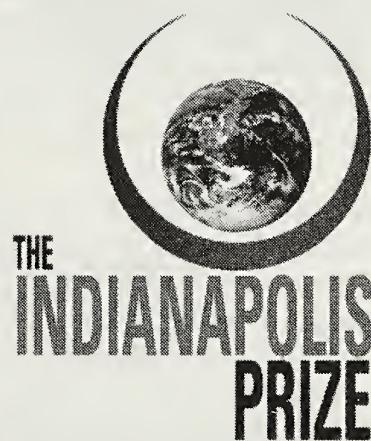
For complete guidelines and to learn more about the nominating process, send an e-mail to [nomination@indianapolisprize.org](mailto:nomination@indianapolisprize.org) or call (317) 630-2710. Once your request has been received, a nomination form with instructions may be sent by return e-mail if applicable.

The winner of the 2010 Indianapolis Prize is Iain Douglas-Hamilton, Ph.D., founder of Save the Elephants (<http://www.savetheelephants.org>). Four decades ago, Douglas-Hamilton pioneered the first in-depth scientific study of elephant social behavior that has set the standard for every study to follow. He led emergency anti-poaching efforts in Uganda to bring the elephant population there from the very brink of extinction and testified before Congress to subsequently establish the African Elephant Bill, to date the most successful funding program for the species. His pioneering Global Positioning System (GPS) elephant tracking, widely emulated in Africa and Asia, has become a model survey technique.

The Indianapolis Prize was first awarded in 2006 to Dr. George Archibald, the co-founder of the International Crane Foundation (<http://www.savingcranes.org/>), who has dedicated more than 30 years to saving the 15 remaining species of these magnificent and increasingly endangered birds. The 2008 winner was George Schaller, Ph.D., senior conservationist for the Wildlife Conservation Society (<http://www.wcs.org/saving-wild-places.aspx>) and Vice President of the Panthera Foundation (<http://www.panthera.org>). For more than 50 years, George Schaller set the standard for working with endangered animals in the field and in working with native populations to create efficient ways for those animals and humans to co-exist.

Past nominees and finalists for the Indianapolis Prize are representative of the most significant conservationists throughout the world. Among the nearly 100 outstanding scientists who have been nominated are: renowned whale and ocean researcher Roger Payne; Carl Safina, champion of ocean conservation; and, heroes to two big cats – Cheetah Conservation Fund founder Laurie Marker and Snow Leopard Conservancy founder Rodney Jackson.

The Indianapolis Prize was initiated in 2004 by the Indianapolis Zoo (<http://www.indyzoo.org>) as a significant component of its mission to empower people and communities, both locally and globally, to advance animal conservation. The Eli Lilly and Company Foundation has provided funding for the Indianapolis Prize since 2006.



# Training North American Black Bears for Blood Draws

By Amy Flew, Curator- Great Apes, Llamas, Alpacas, Bears, Otters, Rhinos, Red Fox  
Knoxville Zoological Gardens, Knoxville, TN

The need for blood draws occurred when we discovered that Odie, one of our seven-year-old male North American black bears (*Ursus americanus*), was allergic to Trimethoprim and Sulfamethoxazole, commonly called TMS. Odie was given the common antibiotic TMS for ongoing skin issues. After several days, he stopped eating, which is very unlike him. He became extremely lethargic, so we decided to anesthetize him to evaluate his condition. It was discovered that he had acute anemia (low red cell count) on the verge of needing a blood transfusion. The fact that he stopped eating, refusing to eat his food and his medication, seemed to improve his health. But, it was still necessary to anesthetize him again two days later to make sure that his red blood cell count was rising back to normal levels.

It is never ideal to anesthetize an animal, especially for something that can be done quickly as getting a blood sample. So, we decided that we could try to train the bears to accept blood draws. We had already modified one of the bear dens (see Photo #1) from a previous occurrence with one of our bears recovering from a broken arm. A window and shelf were added so we could train that bear to present his arm. This alteration proved to be very useful with blood draws (See Photo #2).

The bears already had basic behaviors learned from previous years of training which were valuable for the next steps in this process. Odie and Milo, two seven-year-old males and Ursula, a four-year-old female, were very excited to start training new behaviors. At first we just opened the training window to let them get used to it. Quickly, we moved on to the next step of getting them in the correct position. From previous training, all bears knew how to get in the sit position and present their paw (See Photos #3 and 4). It was apparent with the bears that a safety board would need to be added to the training window. There was too much room for them to move their paw around and the board could prevent possible injuries to the keepers (See Photo #5). To continue on with the next steps it was necessary for the keepers to have two people for the training (See Photo #6). We used continuous reward, and depending on the individual bear's preference, feeding juice or raisins, for the paw preparation and needle sticks.



Photo #1 - Den Door

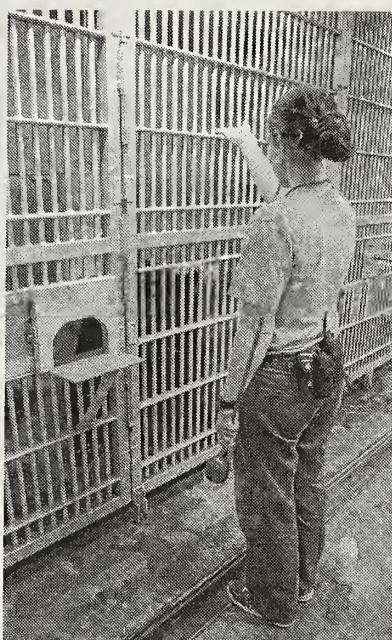
The process of getting the paw area ready for the needle stick went quickly. Simply touching their paw did not bother them, and we were able to clip and shave hair from the area (See Photo #7). The next step was to poke them with the end of a paper clip. This caused them to pull their paw back, especially Ursula, but they quickly got used to it once we added juice as the reward for stationing during training. After several training sessions of substituting the paper clip for a needle, the bears seemed comfortable during training. The only remaining step was to stick them with a needle. Odie was the most receptive to the training. As long as he was getting juice, he allowed us to stick him several times each session. Milo and Ursula soon followed (See Photo #8).

Trying to find veins on a bear is easier said than done, and after many frustrating sessions of trying to collect blood, one of our vets was able to help. He showed us how to find the vein and how to use the butterfly needles (See Photo #9). The needles used are: 19G needles for Milo and Odie and 21G for Ursula. Since then we have been able to collect and bank several samples from each bear. The samples have been used for complete blood counts and biochemistries, as well as, hormone analysis and thyroid testing.

Training the bears for blood draws was surprisingly easy and went quite quickly over just a few weeks. Their enthusiasm for training made our job exciting. The keepers continue to train with the bears for blood draws monthly. The bears are very motivated and excited during training sessions, and the keepers are still honing their technique to collect blood.



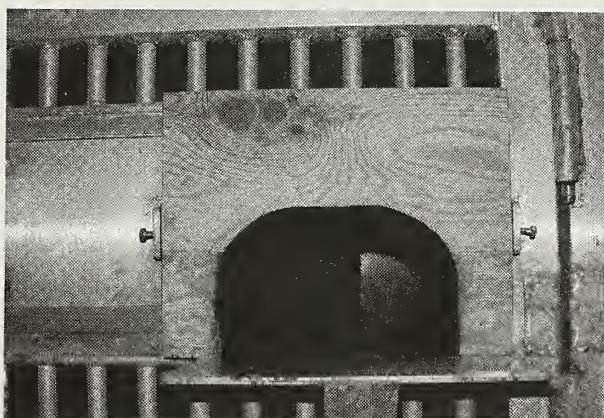
**Photo #2 - Den door with window and shelf**



**Photo #3 - Training for Sit Up Position**



**Photo #4 - Training and rewarding paw position**



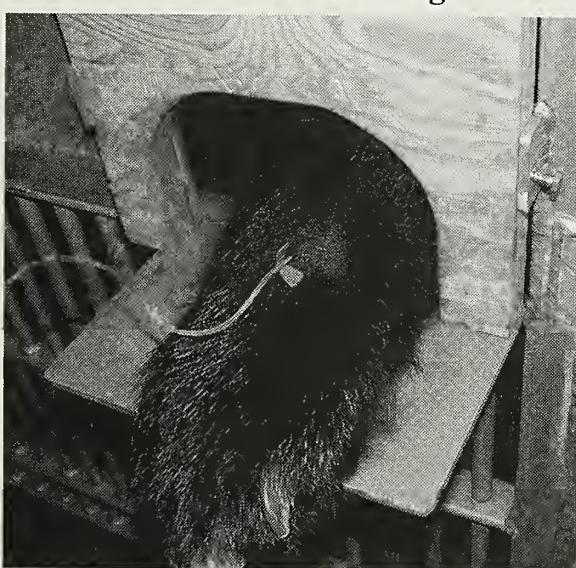
**Photo #5 - Safety board placed in window**



**Photo #6 - Two keepers needed for blood draw training**



**Photo #7 - Clipping hair on top of paw**



**Photo #8 - Using butterfly needles**



**Photo #9 - Successful blood draw**

# **International Animal Shipping**

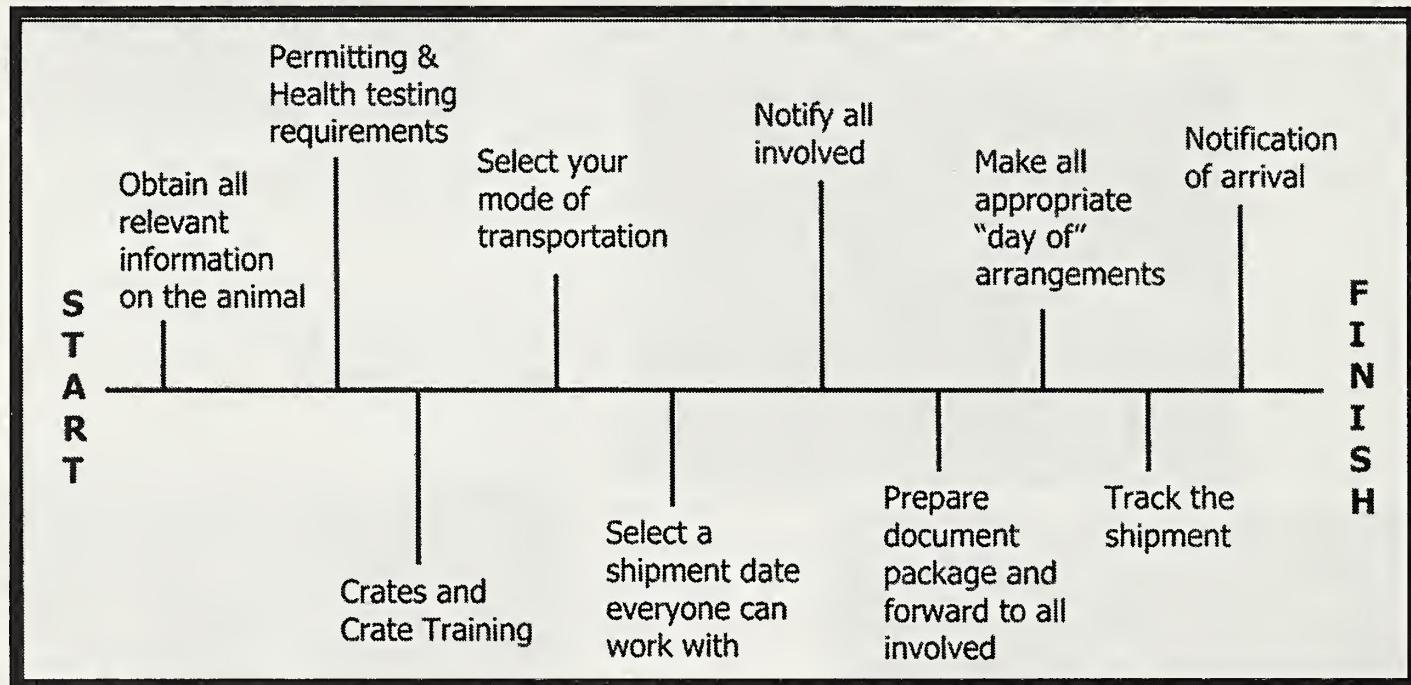
## **One of the Most Daunting Zoo Experiences There Is**

By A. L. Drost, Curatorial Assistant  
Toronto Zoo, Toronto, Canada  
[adrost@torontozoo.ca](mailto:adrost@torontozoo.ca)



### **Introduction**

International animal shipping is not for the light of heart. Crossing international borders with live animals has to occur quickly to ensure the least amount of stress on the animal and efficiently so all goes smoothly with everyone involved. No two shipments ever seem to be the same. So instead of providing a step-by-step account of a particular shipment a more general sequence of stages are to follow.



### **Obtain All Relevant Information on the Animal**

Once it's been decided that a particular animal will be transferred out of its zoological institution, whether it be internationally or domestically, the first step is always the same. A copy of the animal's specimen report, diet sheet and medical records should be supplied from the zoo holding the animal (the consignor) to the zoo that will eventually be receiving the animal (the consignee). One of the key bits of information the specimen report provides is the country of origin. This is a pertinent piece of information when crossing international borders. The medical records also provide information needed when addressing what pre-shipment health testing is required.

### **Permitting and Health Testing Requirements**

As a general rule, every country will have a minimum of two federal bodies that will regulate the movement of live animals across their borders. One of these federal bodies will be a wildlife office. In Canada this is Environment Canada's (EC) Canadian Wildlife Service (CWS). In the United States, all zoos are familiar with the US Fish & Wildlife Service (USFWS). In South Africa, it's the Department of Environmental Affairs and Tourism. It is through offices like these that the CITES (Convention of International Trade of Endangered Species) permits are issued.

Animals will either be CITES I, CITES II, CITES III or non-CITES. A non-CITES animal requires no CITES permit, a CITES II and III animal requires an export permit only from the exporting country while a CITES I animal requires an export permit from the exporting country and an import permit from the importing country. Do keep in mind that some federal bodies also issue import or export permits that are not CITES.

The USFWS for example issues Endangered Species Permits and Threatened Species Permits as well as Import/Export Permits if you are a commercial entity (most zoos are exempt from this) and Designated Port Exception Permits if you are not using an USFWS designated port of entry.

The second federal body that will need to be contacted is the agricultural office. Canada's agricultural office is the Canadian Food Inspection Agency (CFIA), the United States is the United States Department of Agriculture (USDA) and the Netherlands is Ministry of Agriculture, Nature and Food Quality. Offices such as these issue their own import permits and export certificates which are required for some animals, not all. These offices tend to be more interested in hoofstock species and the like, and less interested in regulating animals such as amphibian and reptile species (with exceptions of course). These agriculture offices are responsible for deciding what health testing is required on an animal before and after shipment have occurred. For example, the CFIA require that a warthog (*Phacochoerus aethiopicus*) being imported from the USA must be negative to two (2) tests for the following diseases: brucellosis, tuberculosis, and anaplasmosis, the latter of which must be performed not less than sixty (60) days after the first test and within thirty (30) days preceding the date of import.

As well as checking on federal regulations for permitting, one needs to check to see if there are any provincial and/or state regulations. Some provinces/states require their own separate import/export permit and/or certificate, others only require that an import number be issued and placed on shipment documentation. In-transit permits might be required if the animal has a connecting flight in a country that is neither the importing nor exporting country. For example, if you are moving cheetahs from South Africa to Canada with a flight change in Germany – you may be required by the German officials to have an in-transit permit indicating the purpose and length of stay in Germany.

### **Crates and Crate Training**

The International Air Transport Associate (IATA) issues the Live Animal Regulations (LAR) which is an excellent place to start when considering what crate should be used for a particular animal. This reference material is updated every two years and is regularly adhered to quite strictly by the airlines and by most federal wildlife offices. Very general considerations to remember when selecting a crate for an animal are (a) the crate has external access to food and water, (b) the crate is leak-proof, (c) there is the ability to monitor the animal while crated, (d) the crate is constructed of appropriate and sturdy material which will safely contain the species and (e) the crate is comfortable for the animal. One of the most common mistakes when selecting an appropriate crate for a specimen is to provide too much space, the idea being that a larger crate provides increased comfort to the animal. Unfortunately, increased space also provides increased risk of injury to the animal. If the animal has enough space they might try to run at the front or side of the crate as a means of escape.

Crate training for the animal is an excellent way of providing further comfort during transport. Make sure you have a plan before starting the process. There is quite a bit of information readily available on training but here are some very basic steps one might follow. Generally, the crate is introduced without enticement to go in initially so that the animal can get use to seeing and/or smelling this novel item. A next step is the introduction of food at the entrance of the crate. That food is placed further and further into the crate over time. Our final goal is to have the animal eating its food with its body fully within the crate. Generally, the animal is not locked into the crate unless one has quite a bit of time for the training to occur prior to shipment as once the animal gets locked in, it's usually startled quite badly and will not go back to the crate again any time soon. One of the biggest benefits to crate training is that it relieves a large amount of stress experienced by the animal. At the end of crate training, the crate will be very familiar to the animal, with the animal's own smell and can be essentially the animal's home away from home. Crate training can also eliminate the need to use sedatives for transport.

## Select Your Mode of Transportation

When considering what mode of transportation to use, consider what will get the animal to its destination the quickest. Always use the most direct route available. If possible, avoid inter-airline transfers. The risk of something going wrong can increase significantly if two different airlines are used during the shipment. Usually a freight forwarder is required to physically collect the animal from the first airline then deliver and tender it to the second airline. If you do have to use connecting flights, do keep in mind that most airlines now require up to five hours to remove the animal from one plane and move it to the connecting plane, even if the transfer only takes an hour of real time with the remaining four hours of the animal just waiting. It's always best to have minimum layover times, but this has become more and more challenging to do. Another thing to keep in mind is the fact that most airlines now require the animal to be dropped off a minimum of four hours in advance of the departing flight if the shipment's destination is international.

So what appears to be a quick trip for the animal by air could actually turn out to be just as much time as moving it by land, if not more. For example, if we wanted to move a capybara (*Hydrochaeris hydrochaeris*) from the Toronto Zoo to the Cleveland Metroparks Zoo in Ohio, USA by air our routing would be Toronto- Chicago-Cleveland, with four hours drop off time, one hour flight time to Chicago, five hours down time in Chicago, one hour flight time to Cleveland and one hour recovery time at the Cleveland airport. All told the animal would be in transit for up to 12 hours. It would make more sense to make the five-and-a-half-hour drive with a one hour stop at the border for customs clearance. The last thing to mention about airlines is to make sure one is knowledgeable in any live animal restrictions an airline might have. Some airlines will not carry venomous animals. Some airlines will not fly animals international, but do so domestically. Some airlines will only fly animals on direct flights, and not on connecting flights. The list of restrictions does indeed go on and on.

## Select a Shipment Date Everyone Can Work With

Before a shipment date can be set there are several things to consider. Being in Toronto, Canada one of our foremost considerations is the weather. Winters can be too cold for live animal shipments and summers can be too hot. Both the sending and receiving zoos have issues to consider when selecting a shipment date. The sending zoo has to be ready to send the animal and will require time to complete crate training. A gorilla (*Gorilla gorilla*) might be crate trained in just seven days, while a moose (*Alces alces*) might require up to four weeks. The age of the animal is another consideration – is the animal old enough to move? The receiving zoo has to be ready to receive the animal as well. Perhaps they are receiving a new species to their collection and a new exhibit needs to be completed first. Or perhaps, as often happens in the zoo world, they need to move a specimen out to another zoological institution before they can receive yours. Once all of these considerations (and many others no doubt) have been looked into then it's time to select a tentative shipment date.

## Notify All Involved

The tentative shipment date needs to be selected by the consignor and the consignee. Once this date is agreed upon, an airline booking should be made, or a land transport should be arranged. Once the mode of transportation is decided and booked, the wildlife and agricultural authorities need to be notified and/or booked for inspections. All too often inspections have to happen both in the exporting and in the importing countries. Again, this will depend on the species being transported and on the regulations of the countries involved. Increasingly brokers have to be used to do the customs clearances at the first port of entry of the importing country. Some ports will still allow the consignor or consignee to present paperwork for customs clearance but more and more ports are insisting that a brokerage firm be used. As this is the case, it is probably a good idea to contact the customs offices of both the importing and exporting countries as well. In some instances a freight forwarder will need to be used. Most airlines will only allow bookings from "known shippers" which most zoos are not as they simply do not use airlines often enough to maintain known shipper status. In this case, a freight forwarder would be used to make the booking on the zoo's behalf.

## **Prepare Document Package and Forward to All Involved**

Documentation packages should be prepared and forwarded to all the parties that have been notified of shipment. This is a great way to trouble shoot any problems with the paperwork prior to the shipment actually occurring. Agricultural veterinarians of every country are very particular about the wording on health certificates and many times will supply the correct verbiage they wish to see on the document. The following is a list of some documents that might be included in the package...

- Permits and/or licenses, in-transit permits
- Health certificate
- Air waybill (if transported by air)
- Manifest (if transported by land)
- Certificate of origin
- Specimen reports
- Diet sheet
- Medical records
- Declaration of import/export
- IATA Shippers Certificate
- Commercial invoice
- Hand bill of transporters (if transported by land)
- AAZK Animal Data Transfer Sheet

*(Editor's Note: Please refer to Appendix 3 - we have included at the end of this article some of the examples of the documents that may be required in an international animal shipment. These are not all of the examples provided by the author in their presentation at the 2009 AAZK/ICZ Conference, however.)*

## **Make All Appropriate “day of” Arrangements**

One of the most important arrangements to make for the day of shipment is to ensure that the “correct” staff is on hand for the crating. This might be the key person who has been crate training the animal, or it might be staff who has been involved with past shipments of the same species. Make sure you have arranged for the appropriate number of staff to assist with moving the crate on the day of shipment. Ensure that all of the appropriate equipment will be on hand as well. Moving rhino and elephant species (like *Loxodonta africana* or *Diceros bicornis*) requires forklifts and cranes which will likely have to be supplied by a company offsite and will need to be arranged for well ahead of time. When notification was given to the inspecting officials, an inspection appointment would have likely been made at that time. However, some inspectors require that you call again in the morning of the shipment day to narrow down an exact time of meeting for inspection.

## **Track the Shipment**

Most, if not all airlines have made tracking the shipment much easier by adding a tracking system to their websites. Your tracking number is simply your air waybill number, plug it in and you can have an update of where your animal is within the shipment process. Failing this, one can also contact the airlines by phone and get the same information. If your animal is being moved by land, try to ensure that the driver is carrying a cell phone and ensure that the cell phone is indeed working. When crossing international borders by land, communication with the driver is of the utmost importance. If the driver is going to be late for previously booked inspections, these inspectors need to be notified that the shipment is running behind schedule. The last thing one wants to do is upset an inspector before inspection has even started. Once the animal has cleared the border, the driver should give either the exporting zoo or the importing zoo notification and provide a more accurate estimate of arrival time.

## **Notification of Arrival**

One of the most overlooked steps in any shipment is to notify the consignor of the safe arrival of the animal. It is the experience of this animal shipper that every single living creature undergoing the process of transfer from one zoo to another is very much cared for by someone at the zoo of origin. A quick note from the consignee indicating the safe arrival of the animal is truly appreciated by the consignor!

As indicated in the introduction, this paper is by no means an exact account of how to ship an animal internationally; rather hopefully it provides a formula with which to begin. Live animal shipping across international borders can be quite overwhelming so keep in mind that the transfer of the animal is always for the betterment of the animal, the species and of the zoological institutions.

## **Appendix 1 – Favorite Contacts**

USFWS – Mike Carpenter, Michael\_Carpenter@fws.gov

USFWS Designate Ports – MIA, MEM, ATL

USFWS Non-designated Ports – Buffalo/Niagara Falls (BN)

USDA – Dr. Betzaida Lopez, betzaida.lopez@aphis.usda.gov

CFIA – Import Permits – Dr. Susan Wray, Susan.Wray@inspection.gc.ca

CFIA – Border Crossing – Dr. Arthur King, kinga@inspection.gc.ca

Land Transporters – Ed Novack, tel: 518-469-7608

Air Transporters – Air Canada, American Air, KLM

## **Appendix 2 – Favorite Weblinks or Email Addresses**

CITES I, II or III Import and/or Export Permits

<http://www.cites.org/eng/resources/species.html>

USFWS Threatened or Endangered Permits

[http://ecos.fws.gov/tess\\_public/SpeciesReport.do?kingdom=V&listingType=L](http://ecos.fws.gov/tess_public/SpeciesReport.do?kingdom=V&listingType=L)

CFIA

<http://www.inspection.gc.ca/english/imp/airse.shtml>

USDA

[VS.Live.Animal.Import.Export@aphis.usda.gov](mailto:VS.Live.Animal.Import.Export@aphis.usda.gov)

US State Official checks

[http://www.aphis.usda.gov/import\\_export/animals/animal\\_import/animal\\_imports\\_states.shtml](http://www.aphis.usda.gov/import_export/animals/animal_import/animal_imports_states.shtml)

## **Appendix 3: Document Samples (*included in original conference presentation*)**

Figure 1: Canadian CITES I Export Permit

Figure 2: USA CITES I Import Permit

Figure 3: USFWS Designated Port Exception Permit Certificate

Figure 4: CFIA Health Certificate

Figure 5: USDA Import Permit

Figure 6: Standard Toronto Zoo Health Certificate

Figure 7: USDA Health Certificate

Figure 8: Airline Air Waybill Figure 9: Manifest

Figure 10: Certificate of Origin

Figure 11: Specimen Report

Figure 12: Diet Sheet

Figure 13: Medical Records

Figure 14: IATA Shippers Certificate

Figure 15: Commercial Invoice (Proforma Invoice)

Figure 16: Hand Bill from a land transporter

Figure 17: AAZK Animal Data Transfer Form

Figure 18: Outgoing Flight Arrangements Form

Figure 19: Emergency Instructions Form

Figure 20: Contact List

## Appendix 3: Document Samples

**Figure 2:** USA CITES I Import Permit

**Figure 4:** CFIA Health Certificate

SmartBorder®		ACE Electronic Manifest																																					
		Page 1 of 1																																					
Trip Number: TOBS 200810101348																																							
 <b>Driver:</b> DANHAUER, CHRIS		 <b>Tractor Plate:</b> 268DXG																																					
 <b>Trailer Plate:</b> T677217																																							
<hr/> <p><i>* Denotes an item that is mandatory for reporting information.</i></p> <table border="1"> <tr> <td>Plate # 268DXG DODGE 3000</td> <td>DANHAUER, CHRIS</td> <td>TN</td> <td>Date of Birth or Date of Manufacture</td> </tr> <tr> <td>Owner or Name of Consignee</td> <td></td> <td></td> <td></td> </tr> <tr> <td>TORONTO ZOO</td> <td>TORONTO, ONT, CA</td> <td>TN</td> <td>Date of Inspection</td> </tr> <tr> <td>From State</td> <td></td> <td></td> <td></td> </tr> <tr> <td>0001 BUFFALO-NIAGARA FALLS NY</td> <td>10/14/2008</td> <td></td> <td></td> </tr> </table> <hr/> <p><i>* Denotes an item that is mandatory for reporting information.</i></p> <table border="1"> <tr> <td>State or Province, ZIP Code and MTC Identification or Name &amp; Location of Consignee TORONTO ZOO</td> <td>Source and Source Identification or Name of Consignee New York City Dept of Parks 300 L</td> <td>Trans &amp; Destination or Consignee JACKSONVILLE, FLA 10720-3000 JACKSONVILLE, FL 32219</td> <td>From State or Consignee Type TEN</td> </tr> <tr> <td>TOBS 0001578</td> <td>10/14/2008</td> <td></td> <td></td> </tr> <tr> <td colspan="2">ACE Electronic Manifest</td> <td colspan="2"></td> </tr> <tr> <td colspan="4">* DO NOT ATTACH PAPS STICKER.</td> </tr> </table>				Plate # 268DXG DODGE 3000	DANHAUER, CHRIS	TN	Date of Birth or Date of Manufacture	Owner or Name of Consignee				TORONTO ZOO	TORONTO, ONT, CA	TN	Date of Inspection	From State				0001 BUFFALO-NIAGARA FALLS NY	10/14/2008			State or Province, ZIP Code and MTC Identification or Name & Location of Consignee TORONTO ZOO	Source and Source Identification or Name of Consignee New York City Dept of Parks 300 L	Trans & Destination or Consignee JACKSONVILLE, FLA 10720-3000 JACKSONVILLE, FL 32219	From State or Consignee Type TEN	TOBS 0001578	10/14/2008			ACE Electronic Manifest				* DO NOT ATTACH PAPS STICKER.			
Plate # 268DXG DODGE 3000	DANHAUER, CHRIS	TN	Date of Birth or Date of Manufacture																																				
Owner or Name of Consignee																																							
TORONTO ZOO	TORONTO, ONT, CA	TN	Date of Inspection																																				
From State																																							
0001 BUFFALO-NIAGARA FALLS NY	10/14/2008																																						
State or Province, ZIP Code and MTC Identification or Name & Location of Consignee TORONTO ZOO	Source and Source Identification or Name of Consignee New York City Dept of Parks 300 L	Trans & Destination or Consignee JACKSONVILLE, FLA 10720-3000 JACKSONVILLE, FL 32219	From State or Consignee Type TEN																																				
TOBS 0001578	10/14/2008																																						
ACE Electronic Manifest																																							
* DO NOT ATTACH PAPS STICKER.																																							

METROPOLITAN TORONTO 200		ANIMAL DIET SHEET		NUMBER	345
Species: Leonoptilus rosalia (no subsp)		Diet Effective date: 07/12/10			
Common Name: Golden Horn Loracín					
Number of Adults: 3		4			
Enclosure: Ad101 APOLCAS PW.		6 L104 TAC.		1M22. EASILY	
Item	Food Type	Account	Indiv	Total	Schedule
1	20%EGN 94565521 OLT		80.00	640.00	q W/M/SS
2	REDFIN VIT C 10376G		36.00	220.00	q W/M/TT
3	1/4 tablet dissolved in water daily				
4	1/2 large ray and other broaches		1.00	1.00	q W/M/TT
5	MIXED FRUIT		16.00	104.00	q W/M/TT
6	Banana, mango, apple, grape, orange, melon		16.00	104.00	q W/M/TT
7	MIXED WHOLE EGGS		2.30	24.00	q W/M/TT
8	part of insect ration 3 times weekly		6.00	62.00	q W/M/TT
9	CRICKETS, LASCE (3/4) twice weekly		4.25	36.00	q W/M/TT
10	TWICE weekly		4.25	36.00	q W/M/TT
11	CARROTS		6.00	51.00	q W/M/TT
12	Orange Nuc., seed and frt		27.00	188.00	q W/M/TT
		total cost per animal per day:	1	0.55	
		total cost per animal per year:	1	201.60	
<b>EAT STRICTLY AS INDICATED. DO NOT ALTER DIET ON YOUR OWN. IF CHANGE NEEDED, PROVIDE DETAILS ON THIS REQUEST FORM.</b>					
<b>Instructions</b>					
Please report intake and acceptance of food items to animal nutrition centre					
November 25 2010 - please note that the diet has changed to more closely reflect that recommended in the collating herbivore manual! diet items recommended: 1 current; 1 previous; 1 previous					
Fruitless diet					
front	723		652	483	
vegetables	103		131	483	
dry fruit	101		141	0	
Insects	0		23	43	
	84		51	?	
Please report the acceptance of the vegetables. There may be alternatives if they don't eat them.					
Please closely monitor female and body condition and let us know if there are any changes.					
Please try to use the diet as originally offered. Do not offer any items not listed on the diet sheet without prior approval from the nutrition supervisor					
01.05.28 - increased diet to accommodate for growing juveniles, please					

Figure 12: Diet Sheet

**Figure 9:** Manifes

**SHIPPERS CERTIFICATION FOR LIVE ANIMALS**  
 (for transportation of dangerous goods)

This is to certify that [check appropriate box]:

In addition to having completed all advance arrangements, this consignment is properly described and packed, and is in private condition for carriage by air according to the current edition of IATA Live Animals Regulations and all applicable carrier and government regulations. The animal(s) of this consignment is/are in good health and condition.

Animals taken from the wild for this purpose have been appropriately acclimated.

This consignment contains species as described in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Applicable permits/documents are attached to the air waybill.

This consignment contains species as described in other applicable national legislation.

In the case of reptiles and amphibians, the animals contained in this shipment are healthy and they have been examined prior to shipment and free of any apparent injuries and readily recognizable illnesses. They are also free of external parasites infestation, including mites, ticks and fleas and free from any ready-to-spread diseases.

The shipper accepts that carriers will not be liable for any loss, damage or expense arising from death due to natural causes, or death or injury of any animal caused by the actions or acts of the live animal itself or of other animals, such as biting, attacking, fighting or smothering, save for the covered or uninsured sum or proportion of the premium. In the event that an animal will cause or tends to cause or injure to an animal's attendant or custodian by the condition, conduct or acts of such animal.

Number of Participants	Specie's Common Name / Scientific Name and Breeding Status	Species Description and Animal's Scientific Name
1	11Y	One (1) male Northern Harrier (Perro norteamericano)

Name and address of shipper: As per Attached  
 Signature of Shipper: *Alecia G. Gatz*

Address: 206-16-23  
 City: Mississauga  
 Province: Ontario  
 Zip/Postal Code: N3Z 2V6  
 Country: Canada

Telephone: 905-625-2224  
 Fax: 905-625-2224

**CAZA GAZAC**

**OUTGOING FLIGHT ARRANGEMENTS**

FOR:	Kookaburra	DATE PLANNED: 30/06/01			
ARRIERE:	Air Canada American Air	PHONE NUMBER:			
FLIGHT NO.:	AC 581	DEPARTS: YYZ	TORONTO	100	1 hour
ARRIVED:	FRI	ARRIVES: FWD	CHIAGO	100	1 hour
FLIGHT NO.:	AA 3148	DEPARTS: ORD	CHICAGO	100	11:30am
ARRIVED:		ARRIVES: SLC	SALT LAKE CITY	100	1:30pm
FLIGHT NO.:		DEPARTS: SLC			
ARRIVED:		ARRIVES: SLC			
AIRWAYBILL #:	4114954-7322 & 401-4972-1291	BLOCKING #:			
TIME TO BE AT AIRPORT:	1400hrs evening to allow at Air Canada				
SHIP:	CARRIER: AC prepared on Toronto Zonal sheet 490575, AIA prepared by AAAC, Air Int'l Inc.				
<b>DOCUMENTS ENCLOSED</b>					
NUMBER OF CRATES:	1	SIZE OF CRATE:	14" x 41" x 51"		
CITIES:		LABELS:			
HEALTH CERTIFICATE:		SPECIMEN REQUESTED:			
MEDICAL SUMMARY:					
ANIMAL TRANSIT / ISS:		AIAS COMMERCIAL INVOICE:			
CRATE MEASUREMENTS / AIR & VIAL:		SAFETY INSTRUCTIONS / DUTY CHART:			
ANIMAL INFORMATION / SPECIAL REQUIREMENTS:		STOCKS:			

Figure 14: IATA Shippers Certificate

Figure 18: Outgoing Flight Arrangements Form

# Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo  
and Greg McKinney, Philadelphia PA

This month's column was put together by  
column co-coordinator Becky Richendollar



**Officials Meet to Discuss Polar Bear Harvest** - In June, the 2nd annual U.S. – Russia Polar Bear Commission met to discuss the future of the polar bear (*Ursus maritimus*) population in these two countries. The commission consists of federal, state, and Native officials from Russia and the United States. This meeting follows the March meeting of the group's Scientific Working Group, which was tasked with answering questions about the management of the Alaska-Chukotka Polar Bear Population.

The goal of the June meeting was to identify a sustainable subsistence harvest of polar bears in these two countries. The resulting decision is that 19 female polar bears and 39 male polar bears

can be harvested each year by the native peoples of Alaska and Chukotka, Russia for traditional and cultural needs. These numbers, according to the Commission, will be reevaluated periodically based on scientific literature.



(Photo courtesy  
of Polar Bears International)

This decision ends a 50-year ban on hunting polar bears. Officials believe that setting these limits and allowing the hunt will reduce the poaching that currently takes place. In Russia, the harvesting will begin as soon as monitoring methods are in place. In the U.S. native officials will collaborate with the Fish and Wildlife Service to figure out ways to implement the Commission's decision. *Source: U.S. Fish and Wildlife News, June 10, 2010*

## Harsh Conditions May Lead to China's First Animal Welfare Law

**At many zoos in China four dollars will buy you a live chicken, which you can then throw in to the lion pit. Sixty dollars will buy you a young goat. Practices such as these have drawn the attention of several international animal welfare groups that want to see China modernize their attitudes about animals.**

Peter Li, a China specialist for Humane Society International said, "Animals in most of the nation's zoos, wildlife parks and aquariums are a serious concern". In June, Li took part in the first ever workshop for zoo directors, held in Beijing.

A series of scandals have surrounded Chinese zoos in recent months, including the news of 11 Siberian tigers that starved to death. Reformers wish to see the Chinese government take over control of zoos and wildlife parks. Private owners, they say, only look to their bottom line – paying their employees very little and feeding their animals the bare minimum that they need to survive.

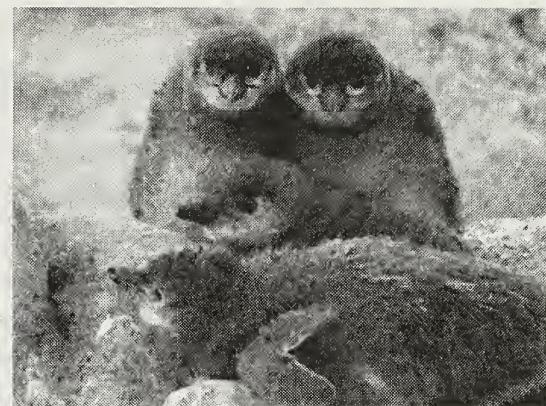
Some small improvements have happened. A few zoos have finally removed signs stating, "bear gall bladder is good for medicine and tiger skins are good for rugs."

Government officials are beginning to discuss a draft animal protection law, but a law such as this would not take affect for several years. *Source: Zoo News Digest, June 22, 2010*

**600 Penguins Die in Cold Snap** - Approximately 600 African penguin (*Spheniscus demersus*) chicks died in mid-June due to a cold snap. The penguins, which live off the coast of South Africa

on Bird Island, were all chicks covered only in downy feathers. A state park spokeswoman said that the birds could have survived the cold snap, but the wind chill and rain accompanying the low temps proved fatal for the young birds.

The African penguin was declared an Endangered Species by the IUCN earlier in June. In 1956 officials counted 150,000 pairs of African penguins. Last year only 26,000 pairs were counted, a decline of more than 80%.



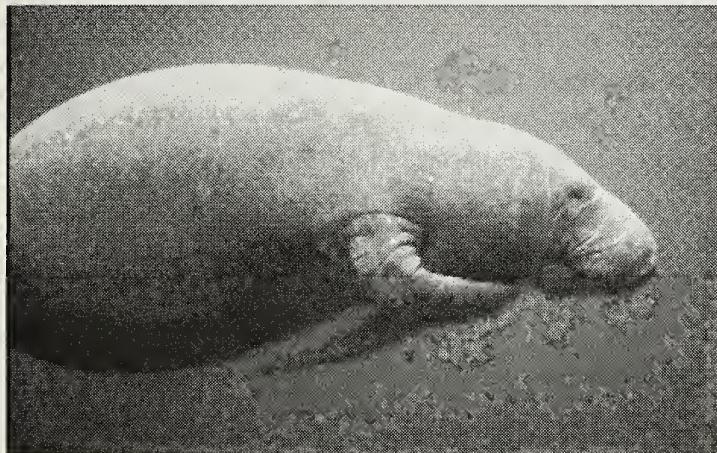
(Photo: Graham Racher)

Bird Island is currently home to only 700 pairs of African penguins, so a hatchling loss of this magnitude is staggering. *Source: The Guardian, June 16, 2010*

**Manatee Monitoring** - Volunteers and researchers off the coast of Alabama are watching the local manatee (*Trichechus manatus*) population for signs of oil damage. Manatees were once thought to stay only in the area off the coast of Florida. However, in 2007 scientists began documenting a significant summer migration of manatees to Mobile Bay, Alabama.

This migration route takes the manatees directly through the path of the oil spill from the Deepwater Horizon. Volunteers armed with binoculars and stopwatches have been monitoring the animals that have already arrived in the area, counting their breaths and checking their skin for signs of infection.

Using radio transmitters, researchers watch the manatees' movements in comparison with the ever-growing swath of oil in the Gulf. The long range outlook is also bleak. Even if the manatees manage to avoid the oil in Mobile Bay, their route back to Florida for the winter may be full of oil.



(Photo: US Fish and Wildlife Digital Library)

Rescuing an oiled manatee would be extremely difficult due to their large size. And scientists say that even a rescued and released animal may swim directly back into its familiar migration route – one that is now filled with oil. *Source: The New York Times, June 20, 2010*

**Senate Votes to Uphold Clean Air Act** - In June, the U.S. Senate voted on S.J. Res 26, Senator Lisa Murkowski's Resolution of Disapproval. The resolution was aimed at preventing the Environmental Protection Agency from regulating greenhouse gas emissions. The resolution was struck down in a vote of 47 to 53.

In 2007, the U.S. Supreme Court ruled that the Environmental Protection Agency can regulate greenhouse gases as a pollutant under the Clean Air Act. Environmental groups were pleased with the outcome. Bob Irvin, the senior Vice President of Defenders of Wildlife said, "The Clean Air Act has successfully protected both human health and wildlife for the past 40 years, and today's vote ensures it can continue to do so." *Source: Defenders of Wildlife, June 10, 2010*

**Colorado Paves the Way With Wildlife Corridor Legislation** - Each year in the United States, there are 725,000 to 1.5 million animal-vehicle collisions, which result in over 200 human deaths, 29,000 human injuries and more than \$8 billion in costs. In Colorado, a law has been put into place that can help eliminate the risk to humans, while at the same time helping to protect wildlife populations.

The Wildlife Crossing Zones Traffic Safety Bill, signed into law in June, will put in place several measures to help protect wildlife. Areas identified as heavy wildlife crossing areas will have signs identifying them as such. In addition, lower speed limits will be posted in these areas and speeding fines in wildlife crossing areas may be double, similar to speeding fines in a construction area.

The Bill was a collaborative effort of several environmental groups and concerned citizens. The Center for Native Ecosystems' Executive Director Bethany Gravell said, "By reducing speeds and alerting motorists to the risk of migrating wildlife, this Act will protect our state's natural resources and save lives. We hope this legislation will raise awareness of the need to protect natural passageways that allow wildlife to stay off roads and move safely within their habitat. *Source: Defenders of Wildlife, June 9, 2010*

**Arabian Oryx Runs Wild Once More** - Twenty captive-born antelopes were released in Jordan's Wadi Rum last year. Salah Malkawi / The NationalABU DHABI // A UAE-funded program to re-introduce the Arabian Oryx (*Oryx leucoryx*) back into the wild, an effort which started in Jordan last year, could soon be extended to Iraq and Syria.

The initiative, worth Dh4 million, released 20 antelopes, born in captivity in the UAE into Jordan's Wadi Rum last year. Three babies have since been born and another 40 animals are set to be released over this year and next. "We have two more countries in the pipeline," said Abdulkassar al Shamsi, the executive director of animal welfare and forestry projects at the Environment Agency - Abu Dhabi.



(Photo: ButterFunkPictures.com)

Once numerous across the Arabian Peninsula, the Arabian Oryx has been extinct from the wild since 1972. The antelope has since survived only in zoos and private collections. Abu Dhabi has the largest population, about 3,000 animals in captivity, and 155 live in a protected area in Umm al Zamool.

Yesterday, Mr al Shamsi said that 15 to 20 UAE-born Arabian Oryx can be sent to Iraq as early as next year, possibly in a secure area near the border with Jordan and Saudi Arabia. He was speaking from Damascus, where a regional conservation strategy to protect the Arabian Oryx is being discussed.

In Oman hundreds of animals were introduced in protected areas in the 1990s. However, poachers and hunters caused the numbers to dwindle from 450 in 1996 to only a few in 2007.

"This goes to prove it is not just a matter of opening the gates and letting the animals out," said Declan O'Donovan, the director of wildlife services at Wadi Al Safa Wildlife Centre, a private establishment in Dubai. "It is imperative that the local populations are fully behind this." *Source: www.The National/ae 6/11/10; Vesela Todorova*

**Why Vanishing Snake Colonies Have 'large-scale implications' for Humanity** - The first documented evidence of the baffling disappearance of up to 90% of snake colonies in five disparate spots on the globe has "large-scale implications" for humanity, a Canadian expert says. And the "most obvious cause, intuitively, would be climate change," biologist Jason Head of the University of Toronto, told the Star.

"Snakes are top predators in their ecosystem," said Head. "They are regulators on rodents. If we remove that regulator, you can expect an increase in the number of disease vectoring (carrying)

animals.” Venomous snakes are taking the biggest hit in the findings, which has serious consequences for medicine, said Head.

“Snakes are not an insignificant component of human society,” he said. “There are large-scale implications” to the disappearance of some kinds of snakes, including the role of snake venom in medicine. “You can draw your own conclusions.”

A recently published study in the journal *Biology Letters* involving painstaking research in England, Nigeria, Australia, Italy and France discovered eight species in 17 snake populations in those widely different climates that had “declined drastically,” said Dr. Christopher Reading, lead researcher for the study.

“In some of the populations, the decline was 70 to 90%,” Reading of the Centre for Ecology & Hydrology in Wallingford, England, told the Star. “This is the first documented evidence that some snake populations have declined. And the fact that it happened at all of the same time, irrespective of geography, indicates there is something at a higher level behind it.”

Snakes are “quite difficult animals to work with,” Reading explained. His team used a tag similar to the microchip that veterinarians use on dogs or cats, while the Italian researchers tracked their snakes with a permanent mark on their belly scales. In all, 11 species were followed from as far back as the 1980s through 2005. In the late 1990s, certain species started vanishing.

In particular, the “fairly sedentary” snakes that use an “ambush foraging technique” disappeared in greater numbers compared with the “wide-ranging, active foragers,” said Reading. And those most sedentary snakes tended to be the venomous ones.

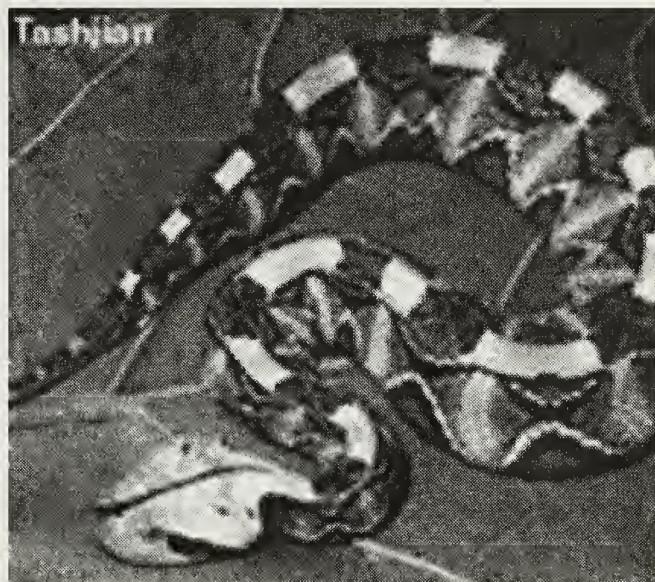
“The scale and precision of this study” impressed Head. And while researchers were careful not to pin the mysterious decline on any one cause, the vastly different geologies of the regions, from tropical to temperate, suggested “one ultimate driving mechanism,” with climate change the clearest culprit, he said. “It’s alarming, to be honest,” Head said. “This is a compelling analysis that is certainly going to get a lot of people looking at the diversity of the species.”

The next stage of study, Reading said, would be to track more snake colonies and more species in more parts of the world, including North America. “It’s possible what we have found is an aberration. But I suspect it is much more widespread.” Reading makes it clear the discovery is only the first stage. “The whole reason for this paper was to say, ‘Look, this is what we’ve found. We are quite alarmed by it. We don’t know what the causes are, but we are flagging it so that herpetologists around the world will look at it.’”

#### SOME DECLINING SNAKE POPULATIONS

Smooth snake (*Coronella austriaca*) in the U.K.  
Asp viper (*Vipera aspis*) in France and Italy  
Orsini’s viper (*Vipera ursinii*) in Italy  
Gaboon viper (*Bitis gabonica*) in Nigeria

Rhinoceros viper (*Bitis nasicornis*) in Nigeria  
Royal or ball python (*Python regius*) in Nigeria  
Western whip snake (*Hierophis viridiflavus*) in France  
Aesculapian snake (*Zamenis longissimus*) in France



Gaboon Viper  
(Photo: ButterFunkPictures.com)

Source: The Star.com 6/11/10 Lesley Ciarula Taylor Staff Reporter

**Oil Spill Numbers** - As approximately 60,000 barrels of oil spew into the Gulf of Mexico daily, environmental groups, nonprofit organizations, and volunteers are working to clean oiled wildlife. For the most up to date tally of oiled birds, sea turtles, and mammals visit the International Bird Rescue Research Center at [www.ibrrc.org](http://www.ibrrc.org) and click on "oiled bird numbers provided by United Area Command.



Bird cleaning station at one of the many centers caring for wildlife affected by the Gulf of Mexico oil spill. (Photo: USFWS Digital Library)

Mississippi is sending staff every week to the Alabama Wildlife Center to help clean oiled animals. In addition, the Jackson Zoo has accepted 11 American white pelicans (*Pelecanus erythrorhynchos*) that can not be released back to the wild due to injuries sustained in the oiled waters. The Jackson Zoo will hold these birds until as they await placement at other AZA accredited institutions.

"We're the halfway house. We do some preliminary medical testing on them, make sure they're eating well, and if they don't have any parasites, and then we'll get them sent off to the other zoos," Deputy Zoo Director Dave Wetzel said. "We also get to teach the public about them. To see a bird that has gone through an oil spill. We can talk about the marshes and the importance of the environment."

Over 60 AZA accredited institutions have now offered staff, physical, and financial resources to the rescue effort. Source: AZA website, June 23, 2010

**Nation's Zoos Stand Ready to Help** - Months after the April 20th explosion of the Deepwater Horizon oil rig, AZA accredited zoos and aquariums are standing by ready to offer their services. Zoo and aquarium workers with experience in animal handling and restraint are valuable resources in the clean up effort. The AZA website discusses several organizations that have assisted in the animal clean up effort since the beginning of this environmental disaster.

The Jackson Zoo in Jackson,

## Big Cat Internships Available Join us in “Saving Tigers One by One”



As seen on Animal Planet®  
“Growing Up Tiger”  
Apply at: [www.tigercreek.org](http://www.tigercreek.org)



Learn about Big Cat Management. Internship involves Animal Care Apprentice and Public Education. We offer experience that counts towards employment.

TIGER MISSING LINK FOUNDATION / TIGER CREEK WILDLIFE REFUGE

# AAZK Membership Application (Please Print)

Check here if renewal [ ]

Name \_\_\_\_\_

Email \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_

## U.S. Members\*

- \$45.00 Professional**  
*Full-time Keeper*
- \$40.00 Affiliate**  
*Other staff & volunteers*
- \$30.00 Student**  
*Must supply copy of current student ID at time of application*
- \$70.00 or up - Individuals Contributing/U.S.**
- \$150.00 or up Institutional/U.S.**  
*Organizations/Institutions (requires Board approval)*
- \$150.00 Commercial Member**  
*(i.e. animal-related food & supplies)*
- \$60.00 International Members** *(All members outside U.S. & Canada regardless of category)*

## Canadian Members\*

- \$45.00 Professional**  
*Full-time Keeper*
- \$40.00 Affiliate**  
*Other staff & volunteers*
- \$30.00 Student**  
*Must supply copy of current student ID at time of application*
- \$70.00 or up - Individuals Contributing/Canada**
- \$150.00 or up Institutional/Canada**  
*Organizations/Institutions (requires Board approval)*
- \$45.00 Library Only**  
*Available ONLY to public & university libraries (In U.S.)*

Zoo Affiliation (if any) \_\_\_\_\_

Zoo Address \_\_\_\_\_

Title \_\_\_\_\_

My check is enclosed (AAZK, Inc.)  Please charge my credit card

Mastercard    Visa       Card# \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Name on card \_\_\_\_\_ Expiration date \_\_\_\_\_

Signature \_\_\_\_\_

Mail this application to: AAZK Administrative Offices, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. **Must be in U.S. FUNDS ONLY**. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free or discounted admission to many zoos and aquariums in the U.S. and Canada.

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01517 0343

Non-Profit Organization  
U.S. POSTAGE PAID  
Topeka, KS  
Permit # 646

**3601 S.W. 29th St.  
Suite 133  
Topeka, KS  
66614-2054  
H.S.A.**

Return Service Requested

of ZOO KEEPERS

*"Dedicated to  
Professional Animal Care"*



Animal Keepers' Forum  
36<sup>th</sup> Anniversary  
1974 - 2010

\*\*\*\*\* MIXED AADC 66340  
9/11 GRP 1 TRAY 4  
National Zoo Library - MRC 551/  
Visitor Center  
PO BOX 37012  
WASHINGTON DC 20013-7012